



FRIDAY, AUGUST 15.

Contributions.

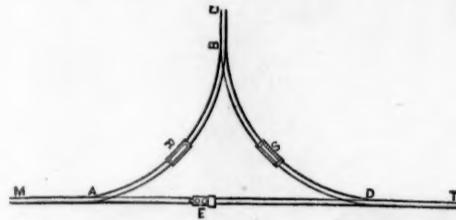
Switching Problem.

BOSTON, MASS., Aug. 9, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The following is a solution, I think, of the "knotty problem" of the locomotive runner of Vermont, which appeared in the *Railroad Gazette* of Aug. 8, pp. 588 and 589. There may be shorter methods, but this will do it.

Back up to *D* and run up *D B*, take *S*, go back to *D* on main line and leave *S* at *E*. Back up to *D*, run up *D B* to *C*, back down on *B A* and push *R* down on *A M*. Then go and couple to *S* at *E*, run to *D*, back up on *D B*, and leave *S* at its original position. Run the engine up to *C*, down on *B A*, along



to *D*, up *D B* again and push *S* up to *C*. Then run down on *B D* to *D*, along *M T* to *A*, up *A B* to *C* and pull *S* down on *A B* to where *R* was originally, and leave it. Now run down *A B*, couple to *R* at *M*, pull it along to *D*, and push it up *D B* to *S*. Then back down *D B* to *D* and run to its position at *E*, and *R* and *S* have changed places and the engine is still heading toward *M*.

"R. I."

CHICAGO, Aug. 9, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Referring to the "light reading" furnished by the Vermont man, if my understanding of the conditions is correct, I would exchange the positions of the cars as follows:

Run *E* to *A* and push *R* to *C*. Run *E* to *A* light and to *D* and *S* same way. Push *S* to *C* and couple to *R*. Bring *S* and *R* to position occupied by *S* in first place. Leave them and run *E* to *D*, *A* and *C* and to *R*. Push both cars to *T*, leaving *S* there, and take *R* back to *S*'s place. Run *E* to *C*, *A* and *T* light; then take *S* to *A* and push it to *R*'s original position of *S*. Then you can send *E* back to its place.

This does not turn the engine and does not employ flying switches or other aid. Am I right?

E. G. P.,

Chicago & Western Indiana Railroad.

ALEXANDRIA, Va., Aug. 9, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Let *E* pull past the switch at *A*, back into side-track *A B*, couple to *R*, and back it on to track *B C*; then return to main track, back past switch at *D*, enter side track *D B* head first, couple to *S*, shove it to track *B C*, and couple to *R*. Then bring *S* and *R* both to main track, and shift them so as to reverse their positions, re-enter side track *D B*, shove *S* on to track *B C*, and back out, leaving *R* in the position formerly occupied by *S*. Let *E* then, after backing out on main track, again pull past switch at *A*, back in on siding *A B* to track *B C*, couple to *S*, and pull it into the position formerly occupied by *R*. *E* can then return to its original position on main line. Am I right, or is there an easier way?

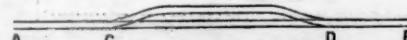
D.,
Virginia Midland Railroad.

RICHMOND, Va., Aug. 9, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I am rather astonished that the "Knotty Problem" from the Vermont Loco runner should have been the means of "staggering some brilliant minds" and using up the "midnight oil of several first-class conductors and yard-masters." The answer is as follows:

Let the engine *E* switch *R* car into track *B C*. Leave it there; go and couple on to *S* car, push it up side-track to *R* car and couple on to it. Bring them both on to main track and switch *R* car on track *A D*; uncouple and switch *S* car on track *B C* by way of *D B*; then couple on to *R* car, and place it in the position formerly held by *S* car; then go round and bring *R* car out of track *B C* into position required.

I would suggest another problem as follows: *A B* is the

single main track of indefinite length, *C D* the side track which will hold 30 cars with engine attached. The problem is to pass two trains composed of engine and 60 cars each, caboose included, approaching each other from opposite direction, without the aid of flying-switches, ropes, etc., the engines not to be turned round, but after the operation to be at the head of their respective trains and to proceed on the journey as though nothing of the kind had taken place.

A. T.,
Chesapeake & Ohio Railroad.

[A. T.'s solution is the first correct one received. One correspondent, dating from New York, says: "If the engine cannot be turned around, I do not be-

lieve the problem can be worked. I got this far in five minutes; some hours more on it does not change the opinion formed." —EDITOR RAILROAD GAZETTE.]

CHICAGO, Aug. 11, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Though not a railroad man, I am much interested in looking over the *Gazette*, and in your last issue I noticed a problem in switching cars that attracted my attention; first, for its apparent simplicity, and second for the "thick-headedness" which could find any difficulty in it. Something less than sixty seconds was, in my case, sufficient for its solution. It seems hardly worth sending, but the following is a method: Push the car *S* on to *BC*, go around and push *R* up to *B* and couple on to *S*; bring both down to *M* and back to *T*, where leave *S*; take *R* back to *M* and push it on to *BC*; take engine around to right-hand curve and bring *R* down to original position of *S*, where leave it; then back down to *S*, which is at *T*, take it along main track and by switch *A* place it at original place of *R*; then run engine back to starting point.

L. B.

[Correct in less than sixty seconds! How is it that they jump to these rapid conclusions in Chicago? Our correspondent has evidently mistaken his vocation. He ought to have made a fortune as a yard-master.—EDITOR.]

PITTSBURGH, Pa., Aug. 12, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Run engine out to *M*; push *R* to *C*; uncouple; run engine to *M*, to *T*. Push car *S* to *R* and couple; pull down to *T*, back out on main track, uncouple cars; pull *S* back to *T* and push up to *C*; uncouple. Come back on main track for *R* and take back to place of *S*; uncouple and come around *Y* and couple to *S* and pull to *R*; uncouple and return engine to its place.

HERMAN SCOTT.

HUDSON, N. Y., Aug. 12, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Run engine out to *M*, and back *R* to *BC*, and leave it there. Run engine to *M*, and back down to *T*, run up *DB*, and couple to car *S*, pushing it to *R* on *BC*; couple up, and pull both cars back to *T*, and push to *E*; leave car *R* there, and run back with car *S*, and push it to *BC*, and leave it there. Back engine to *T*, run up, and couple to car *R*, and pull it to *T*, and push it to original position of car *S*. Back engine to *T*, run to *M*, back up to car *S* at *BC*, and pull it to original position of car *R*, leaving it there. Then return engine to its original position.

WM. W. TURLEY.

Car Accountants' Association—Annual Convention.

(Continued from page 588.)

We continue the condensation of the official report of the convention of the Car Accountants' Association in Richmond, in May last, as follows:

IMPROPER LOADING OF CARS.

1. What is the best system for distributing foreign cars to insure prompt movement and proper loading?

Mr. MARONEY: I try to keep foreign cars moving promptly and to load them promptly, and if I get a location of foreign cars from agents and reports by telegraph, I can load them home very promptly. It is possible to get up a system of distribution that will prevent delay to foreign cars. If the road has any business, they will get home very promptly.

Mr. SLEIGHT: It is a rule on our road that when the agent wants a car he must specify to what road he wants to load it, and to what point the car is to be loaded.

Mr. MOOR: Agents should never load a home car where a foreign car could be loaded home.

Mr. SLEIGHT: You trace to me for a certain car, and I notify the dispatcher that, if possible, he must load it for a certain point, and if he cannot, we order it to any point, where it can be loaded for home.

Mr. SQUIRE: I receive a report from each division, which specifies in detail just what each division has, and on the margin of the report there is given a list of all foreign cars on hand and not wanted. As foreign cars are needed, we draw from these cars, sometimes hauling them many hundred miles to get them to the place they are wanted. It is a very easy matter to get the cars home promptly empty, but it cannot always be done economically and promptly.

Mr. FELLOWS: At present we are conducting our distribution very much the same as Mr. Squire, our chief train dispatchers having charge of the car movement.

Mr. SPEESE: We furnish all foreign cars from our office. The agents state what kind of a car they need, whether box or gondola; destination of car, and line upon which it goes. All the lines run over our road, and all have an agency in our city. Although we have foreign cars on our line, we are often compelled to load our own cars west, and the foreign cars go home empty in the same train. This is unavoidable on account of the many different lines. If we have a lot of freight and do not know by what route it is to be moved, we go to the office of the shipper and find out by which route they wish it to go, and send it accordingly.

Then, again, sometimes the east-bound freight is heavy, and the west-bound very light, and we are compelled to send the cars west empty.

Mr. MARONEY: While some roads have a very fair system for distributing cars on their lines, others have very poor systems, which might be improved, and therefore I move that a committee of three be appointed to inquire into the present system of distribution of all cars, and see where it can be improved, and report at the next meeting of this Association, after consulting with the railway managers.

Mr. SQUIRE moved that a form be printed so as to show a mark for empty or loaded cars on junction reports.

Mr. POWELL: We have a column in which the loaded cars are marked with a cross, and the empties with an *E*, and I move that a column be made next to the numbers, and that *X* be used for loaded, and *E* for empty.

Mr. SWEENEY thought it unnecessary to mark anything but loaded cars.

Mr. KEESBERRY: The marks should be used for loaded cars, as conductors and agents use a cross for loaded cars, and it would make uniformity.

Mr. YARDLEY: It is only necessary to have the column, and let the different roads use it or not.

Mr. POWELL's motion was lost.

Mr. MARONEY moved that a committee of three be ap-

pointed, of which the President shall be chairman, whose duty it shall be to endeavor to secure the adoption by all roads of the standard Junction Report decided upon by this Convention, and to report at the next meeting the names of railroads using Junction Reports, specifying those that do not conform to the standard.

Adopted.

CAR SERVICE.

1. The possibility of increased car service. What is necessary to accomplish the same?

Mr. SQUIRE moved that the most equitable system for car service settlements should be based on a per diem rate in addition to a mileage rate, and that if this system of settlement can be brought about, it would result in a more speedy return of cars to owners, and in this way only can the greatest service be got from the freight equipment and prevent the wanton delay to foreign cars that is now so common on roads which practice holding foreign cars on their lines for possible business in the future.

Mr. SWEENEY: I am in accord with the resolution, but do not think the Convention has the power to adopt it. There are not more than one or two gentlemen present who have authority to say how car service shall be settled. We should appoint a committee to get the views of the managers.

A letter from the Master of Transportation of the South Carolina Railroad was read.

The writer, Mr. L. H. AVERILL, stated that car service might be increased by abolishing the present defective system of car mileage, and substituting a per diem system that will greatly increase the service, and remove many of the present evils. The car exchange and mileage settlements as now conducted in the territory in the South and West formerly covered by the Green Line Car Mileage and Clearing-House, at Atlanta, Georgia, and by the Clearing-House at Charlotte, N. C., is as under. It is a car exchange on a mileage basis of $\frac{1}{4}$ cent per mile, with accounts kept (since the Green Line agency was abolished) with each road, and Junction Reports received when it is convenient to send them, with monthly statements of mileage in from 30 to 60 days after the close of the month. Cars are delayed by consignees not unloading promptly, and in many cases no effort is made by local agents to expedite unloading. At competing points agents are unwilling to do so, fearing to antagonize consignees and drive them to competing lines, and allow them to retail out a car load of bulk meat or corn from the car. During the phosphate season cars are held at small local stations until the farmer is ready to haul his fertilizer to the field, and if, unfortunately for the road owning the car, there has been rain enough to place the country roads in a bad condition, the car remains an indefinite period. Our cars have remained on sidings of connecting roads for three weeks, and we have only received 52 cents for the entire service. The use of foreign cars in local service in many instances is carried to excess, and is a great hardship to owners of the cars. All lines are guilty of some of these charges, and will continue to be as long as the system lasts.

The letter gave instances of cars having been detained 222 days, for which only \$11.95, or $\frac{1}{4}$ cents a day was received. In another case a car was detained 284 days, and the return for car mileage was only \$15.66, or $\frac{1}{2}$ cents per day. Another detained 55 days, giving only $\frac{1}{2}$ cents per day; another 48 days, $\frac{1}{2}$ cents per day, and another 57 days, $\frac{1}{2}$ cents per day.

The car accountant's office, as now worked by the majority of roads, is an important one, being under the control of the master of transportation. He is able at once to refer to the car records and fill his orders for cars from all points, as he is the officer in direct communication with the general officers, agents and way train conductors. Place this authority in the car accountant's department, that department, and virtually place the car accountant in position of master of transportation. If the Convention decide to consider the per diem system, the questions here propounded should be embraced in that system.

The letter was received.

2. Would it not be of advantage to have the car accountant invested with authority to distribute cars, in order to improve upon their movement and service; also to insure foreign cars being loaded properly; and after being vested with such authority, be particular that all agents, trainmasters, and others in charge of loading and moving cars, be properly instructed?

Mr. SQUIRE: If some per diem rate could be adopted in connection with the mileage system, it would be the best thing that could be done. I do not want to see the mileage system done away with. I remember the confusion and the immense amount of work it required before the mileage rate was made $\frac{1}{4}$ cent all around, some roads receiving and paying one cent, others $\frac{1}{2}$ cent, and numerous other rates. If the per diem system was adopted, the roads would not hold the cars, and unless it is adopted the roads will hold them, because it does not cost them anything, and they have the privilege of loading.

Mr. SPALDING thought the mileage rate of $\frac{1}{4}$ cent a mile (he had prepared figures to show) was excessive, and offered a resolution to this effect, and thought when the per diem system was taken into consideration it would be found very excessive. This plan would entail great expense and would finally do away with car accountants. It should be worked on a wheelage basis, and not on a per diem system of detention. The best system is to charge demurrage, if the law of the state allows it.

Mr. EWINGS: It is illegal in New England.

Mr. WILKES moved: That a committee of five be appointed to investigate the matter, consult the managers, and report at the next meeting of this Association.

Mr. SPEESE favored the motion, but thought those present had no control of the matter.

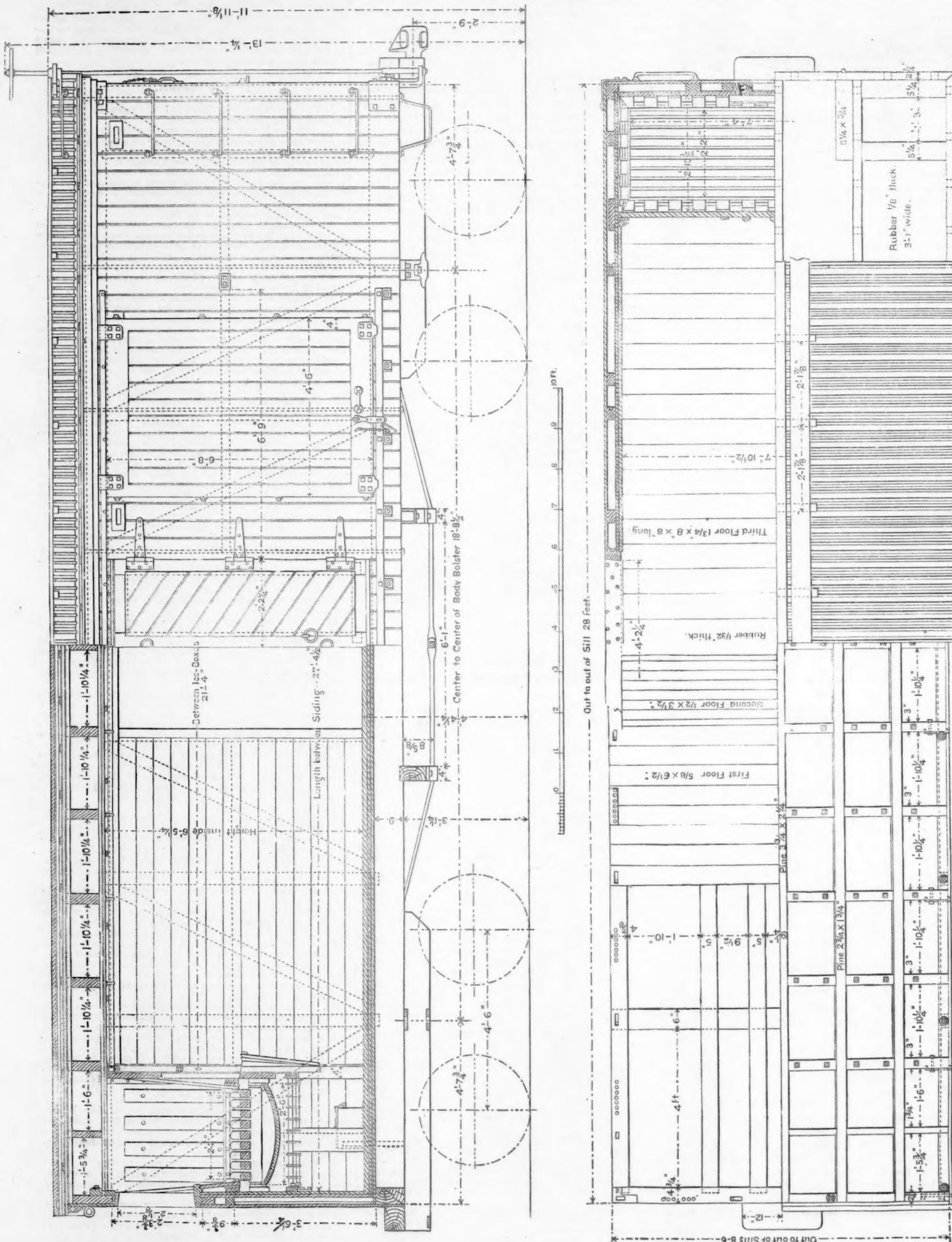
Mr. WILKES was opposed to a per diem system.

Mr. YARDLEY thought they should agree on a well-arranged scheme which could be recommended to the general managers.

Mr. KEESBERRY: I am opposed to a per diem system. The Pennsylvania, the Reading and other railroads centering in large seaboard cities like New York, Philadelphia and Baltimore, will be, if such an arrangement is carried out, at the mercy of other roads. We must provide terminal facilities, and there are times when our facilities are crowded, and times when it is impossible to receive vessels for the shipment of freight. What is to be done? If vessels cannot be secured we have no alternative but to hold the car or dump it on the ground. We have large facilities and do everything in our power to unload cars promptly, and I think our friends should look at this in the right kind of a spirit.

Mr. SQUIRE thought 25 cents a day a fair charge for cars. It is no fault of ours that other roads hold our cars on account of insufficient facilities, nor can we help it in any way, and I think if a per diem system was instituted, it would stimulate those roads to provide terminal facilities.

Mr. HOYLE: Every one admits that we have not a perfect system, and for this reason I should like to have a new one tried. I had a car to leave my line in June, 1882, and it did not get back until April, 1884, and I expect I got about \$4 for the car. We have got to try this per diem system, and see what is in it before we can tell anything about it; and my road is in favor of it, and I hope to see it tried.



THE AYER RUBBER REFRIGERATOR CAR.

Mr. RAND: I was instructed by our general manager to favor this plan.

Mr. MOOAR was also in favor of a per diem charge. The equipment of all roads in the country is in excess of the demand, if it was all moved promptly. Private cars, owned by private parties on my line, earned equal to 13 per cent, and the money loaned out would have brought in 7 per cent. I have prepared the following figures: No. of cars in service, 16,529; No. of tons of freight carried, 9,195,538; average distance each ton hauled, 205.8 miles; average No. of tons per car, per year, 556; average No. of tons per car, per day, 1 1/4, on a basis of 313 days per year. This, on a basis of 10 tons per car, shows tonnage carried equal to only one-sixth of the carrying capacity of the cars owned, and yet at the close of the year the "hire of cars" account showed a debit balance of \$421,930.69.

Mr. FELLOWS: I am in accord with Mr. Squire's resolution, and believe we have 30 per cent. more cars than we actually need, if they are promptly handled, and I am very much in

favor of appointing this committee. I am also in favor of improvement, and think some can be made.

Mr. WILKES' motion was then adopted.

Mr. YARDLEY offered the following resolution, which was adopted:

"There shall be printed at the head of the published proceedings for each year the following note: 'The opinions advanced and votes given at the meetings of this Convention, as published below, are to be understood as the expression of the individual members only, and as in no way binding on the roads they represent.'

PENALTY FOR DETENTION OF CARS.

Mr. MARONEY: It is impossible to have a direct demurrage charge, but an indirect one may be inserted in the bill of lading.

Mr. MOOAR moved: that the consideration of the first section of the seventh subject be postponed until the reception

of the report of the committee on first and third sections of the sixth subject.

Adopted.

2. Should accountants be authorized to prevent more than ten days' delay to foreign cars (special cars excepted)?

The PRESIDENT: This is impracticable in the state of South Carolina, where the agent has to deliver the freight at the rate called for by the bill of lading.

Is it not considered of equal advantage and important to all roads, in case of detention of cars, home or foreign, upon their own lines, to enforce a demurrage charge? What value has the system to those roads which have enforced it?

Mr. KEESEBERRY: We charge about \$18,000 demurrage every year, and find the system promotes the interest of the road by accelerating the movement of cars. This is the intention of the charge. It should be in force on every road, so that at competing points it may be carried out satisfactorily.

Mr. MOOAR: The demurrage charge is a good thing, but

unfortunately is illegal in Indiana, and other states. Some particular shipper pays his demurrage, and sends in his bill, and it is returned. If the per diem charge were universal, the shipper could not say, "If you do not take it off I will ship by some other road." The demurrage charge is not feasible unless universally adopted.

Mr. ALLPORT: A law has been passed allowing New England roads to collect demurrage, and a clause to this effect is printed on the bills of lading.

The subject was referred to a committee.

DELAYED CARS IN NEW ENGLAND.

Is it feasible to appoint a committee to confer with officers of New England roads in regard to prompt unloading and return of cars in that territory?

Mr. KEESBERRY: Our cars are delayed 30 to 32 days in New England; it is one of the worst countries into which cars go.

Messrs. Keesberry, Chesebro, Rennin and Carter were appointed as a committee to confer with the different management in New England on this subject.

ask every Southern road to report detained or diverted cars to us, and thus do away with lost car agents, and more cheaply expedite the movement of cars. We have nothing to do with mileage. The Northern lines will not be asked for duplicate reports. We shall keep records.

In reply to questions, the President stated: We will simply trace for the cars and hurry the delayed ones home when requested, and will have nothing to do with the mileage, as ours is merely a car tracing association, and we do not wish to interfere with any lost car agent or car accountant.

Mr. SPEESE moved that this convention endorse the Southern Car Tracing Association. Adopted.

The following letter was then read:

"The St. Louis Bridge & Tunnel Co. will furnish junction reports to any and all members of the Car Accountants' Association who will furnish blanks, which should be addressed to Jno. J. Baulch, Union Depot, St. Louis, Mo.

[Signed] JNO. J. BAULCH."

Mr. Baulch and other representatives of belt roads were invited to be present at the next convention at Minneapolis.

& Western. We pay $\frac{1}{2}$ cent per mile for all cars that go south.

Mr. SPALDING and Mr. HILL had complied with the resolution passed last year, and made a similar payment.

Mr. HORTON: In the North, all mileage follows the body of the car.

The PRESIDENT: I am anxious to get rid of this truckage business. The general manager told me he would not consent to give full mileage for hoisted cars.

Mr. SPALDING: I move that a committee of three be appointed to confer with the managers of roads that do not report full car mileage on the bodies, and prevail upon them to comply with the rules of this Association.

Adopted.

On motion of Mr. CARTER, the Convention then adjourned to meet at Minneapolis, Minn., June 23, 1885.

The following are extracts from some letters that were ordered to be printed in the proceedings.

1. From C. J. Wilder, Freight Auditor Central Pacific road:

"I hope the Convention will succeed in arriving at some iron-clad method of compelling the prompt action of foreign cars, the accounting for mileage made by them, and the honest reporting of accidents, and the consequent damage cars sustain; also that demurrage be collected for over detention of cars by consignees, and this demurrage be credited to owners."

2. From R. H. Smith, Accountant Canadian Pacific road:

"I hope the meeting will take some decided and energetic steps to prevent the grievous delays to cars on New England roads. An improvement in the present system of handling cars in New England * * * * would greatly enhance the service of freight cars on this continent, and consequently prove a source of greatly increased revenue. * * * * Mr. Hunt, of the Grand Trunk, joins with me in this letter, and we both offer our hearty co-operation."

3. From E. B. Allen, Car Accountant Houston & Texas Central road:

"Upon the question: What action should be taken upon receipt of a tracer from a foreign road? I recommend the two following blanks, which may be useful when cars are still on the line:'

L.

Office of R. R.

188.

Eq., Supt.:

DEAR SIR: I am in receipt of a tracer from the R. R. for their car No. It came on our line at 188...., and according to latest reports is now at Respectfully,

Car Accountant.

II.

Office of R. R.

188.

Eq., Car Accountant. R. R.:

DEAR SIR: I have just received your tracer for The car is at on our line, and I have this day notified our superintendent of its whereabouts. It will at once be ordered home, and as soon as I receive notice of its delivery to our connection the fact will be noted and tracer will follow.

Yours truly,

Car Accountant. R. R.

Note.

In another letter Mr. Allen says: "The universal practice of entering the destination of cars upon junction reports would be particularly valuable—

"1. In getting cars returned home promptly after reaching destination.

"2. In forestalling and preventing misuse of cars by foreign roads.

"3. In furnishing additional guide (in case of missing reports) as to the route a car may be expected to go or come.

"4. In fortifying against the loss of a car.

"5. In securing dispatch.

"6. In avoiding useless tracing.

"7. In furnishing the means of knowing whether a car is moved on the road receiving it, or merely switched at the point of delivery.

"8. In any relative information which the car accountant may be required to furnish."

The Ayer Rubber Refrigerator Car.

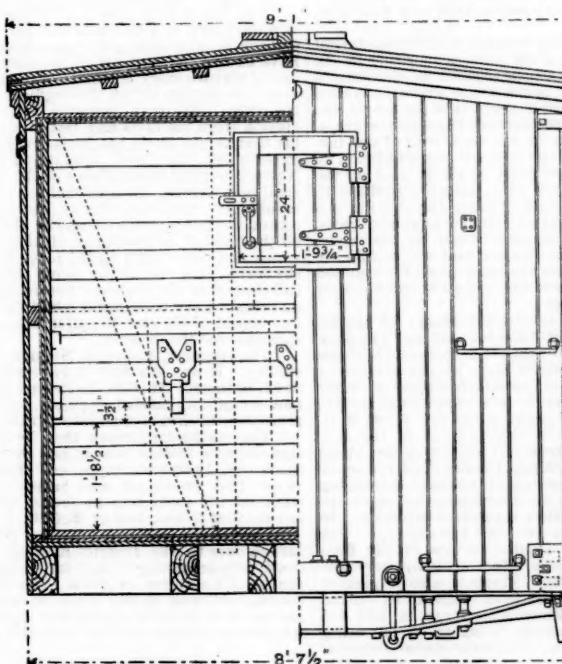
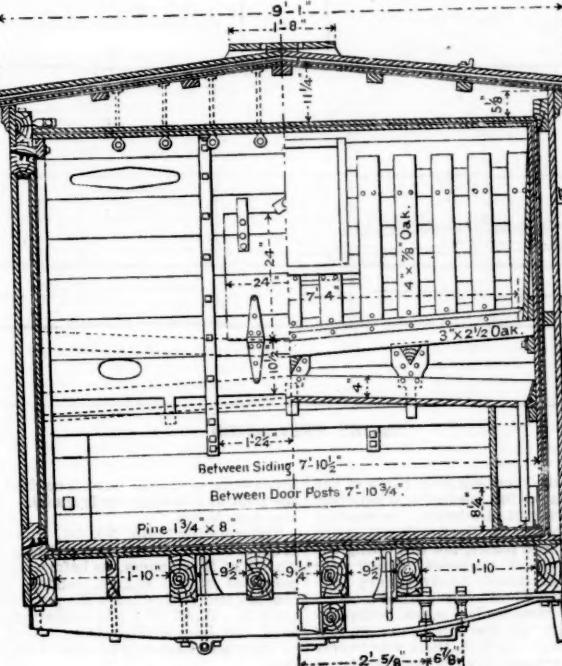
This form of refrigerator car has been used for the last seven years, and is now largely adopted on the Chicago, Burlington & Quincy, the Chicago & Northwestern, the Baltimore & Ohio, and other roads. The principal distinguishing feature in the car is the use of rubber sheeting, about $\frac{1}{8}$ in. thick, as a non-conductor. This substance presents several advantages. Being thin, it takes up little space, and the sides of the car need not be made of extraordinary thickness, and consequently more space can be given in the interior of the car. Rubber being a non-absorbent of moisture, cannot become musty or sour, tainting and spoiling the contents of the car. The rubber linings are all lapped, tacked and cemented together, so that the car cannot draw air to destroy temperature, consume ice, or condense moisture upon the contents. The elasticity of the rubber overcomes any liability to admit air from pounding, strains or other causes.

As the least possible amount of metal is used inside the car the moisture can condense only on the ice, thus insuring a dry cold, which is so essential to the proper preservation of the contents of the car. The construction of the ice tray is clearly shown in the illustrations.

No exterior air is admitted to the interior of the car, which therefore belongs to the class of non-ventilated cars. The sills, however, are bored from top to bottom, and the outside course of boards at the top show the direct lines of draught established. Thus the air is constantly changing in the chamber formed between the outside course of boards and the rubber linings on the opposite side of the studding. The roof has the same general principles of construction.

The average weight of these cars is about 23,000 lbs., or from 1,000 to 1,500 lbs. more than an ordinary box-car.

Double-lined refrigerator-cars of this kind are reported to cost \$750 to \$800 to build; single-lined cars, from \$650 to \$700. The linings for a single-lined butter and egg car cost



THE AYER RUBBER REFRIGERATOR CAR.

RAILWAY CAR EQUIPMENT GUIDE.

What are the views of the Association as to adopting Scherl's Handbook, recommended at Boston?

Mr. SCHERL: Mr. Scherl (Lake Shore) has for several years been at work on a handbook for the interchange of cars. The book is composed of equipment lists of all the lines, and will be published once a month. The equipment list of every road that will subscribe will be placed in this book, regularly indexed, and the cost would not be much more than the equipment list printed by separate roads. It will contain the initials, numbers, capacity, length, and a detailed list of the different kinds of equipment.

The following resolution was adopted:

"Whereas, This Association is very desirous of adopting a uniform equipment list and reference book for the interchange of cars, therefore be it

"Resolved, That the President of this Association appoint a committee of three to wait upon Mr. Scherl, of Cleveland, O., to inspect his handbook, and if in their opinion they find it serviceable, that they be empowered to issue a circular to be sent to every member of this Association, embracing a series of questions which this committee may desire in order to compile this book, and estimate as to the cost per copy, and the Secretary be instructed to send a sample sheet to each member."

SOUTHERN CAR TRACING ASSOCIATION.

Mr. SPALDING: Messrs. Hoyle, Moody and myself have organized a new car tracing association in the South. We

Mr. BLAKSLEE moved the following resolution, which was adopted: "That a committee of three be appointed to confer with general managers of all lines and get their consent to have all mileage made by cars in their respective lines reported direct to them, showing earnings of each series of cars respectively."

Mr. SPALDING then read a paper in favor of the bodies on transfer trucks receiving all the mileage. A good transfer truck car will cost about \$515—trucks, \$315; body, \$200. The proportion of expenses in repair is body, one-fourth; trucks, three-fourths; but there are material advantages derived from the roads owning hoist and hoist trucks, and independent of these advantages it is not unjust to credit body with total mileage. To illustrate: Louisville & Nashville furnishes trans-Ohio River car bodies with trucks, and although Louisville & Nashville trucks wear and tear while trans-Ohio River trucks rest, yet Louisville & Nashville car body, while going north, will take trans-Ohio River trucks, and same thing will apply to Louisville & Nashville trucks, and we cannot charge the trucks, as often it is impossible to determine on what trucks cars are mounted.

The PRESIDENT: During the past six years we have not moved ten cars over our lines on their own trucks.

Mr. MARONEY: Foreign cars coming down the Shenandoah Valley and Norfolk & Western to the East Tennessee, Virginia & Georgia, the mileage is reported to the Norfolk & Western road, and we only get $\frac{1}{2}$ cent per car per mile.

Mr. HOYLE: This matter should be settled with the Norfolk

\$125 to \$150, according to the length of the car; and for a double-lined beef car the linings cost \$200 to \$225.

The engraving shows the car as built and used by the Chicago, Burlington & Quincy Railroad.

The Ross Brake-Shoe.

The accompanying illustration shows a form of shoe that has been in use for the last twelve months on the New York, Lake Erie & Western with very satisfactory results, as reported by the officials of this road. On one of the divisions of this road there is a very heavy grade, upon which pushers have to be employed. The bulk of the loaded traffic goes down the grade, and it was necessary to equip the pushing engine with the driver brake to assist in holding the trains down this grade. In March, 1882, a mogul engine with 18 x 24-in. cylinders and 54-in. driving-wheels, having new tires, was put into this service, and from March 30, 1882, to July 9, 1883, the engine was in service, working part of the time with two crews, and made an average of 60 miles every 12 hours for 824 days of 12 hours each. During that time the engine had to be taken into the shop four different times to have the tires turned. These tires were reduced 3 in. in diameter by this turning, or 1 1/2 in. in thickness. The mileage made was 49,440 miles, which would show only 2,060 miles for 1 in. wear. Mr. Ross, the Master Mechanic of that division, obtained permission to experiment upon the brake-shoes, and, July 9, 1883, he applied a shoe similar to the one shown in the cut, which he afterwards patented. On Feb. 1 the tires were measured and found to be reduced in diameter only 1/16 in. The engine is still in service, and no repairs have since been needed. The engine being stationed at a point away from the shops, it was not convenient to get the measurements of the tires at this time. From July 9, 1883, to Feb. 1, 1884, the engine made 240 days of 12 hours each, or 14,400 miles, at 60 miles per day. This would show an average of 9,600 miles per 1/16 in. wear, as against 2,060 miles with the common shoe. Since that time the shoes have been tried upon several other pushing engines, and it is reported with equally good results.

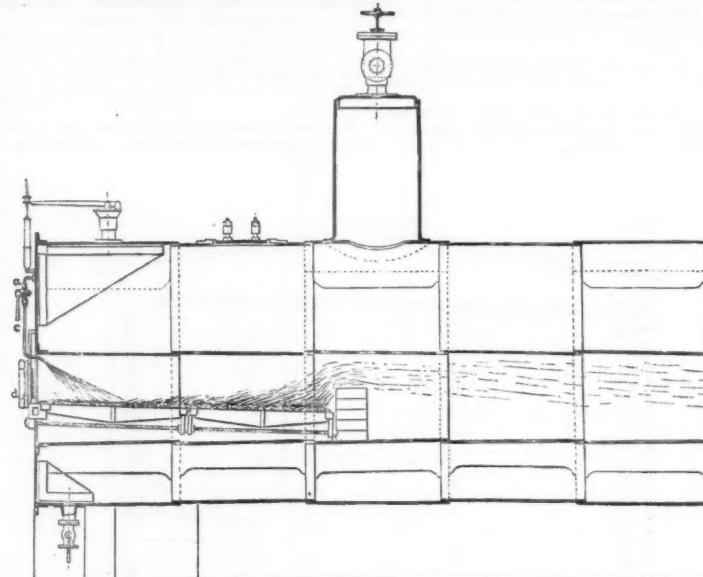
A trial upon the truck wheels of a tender is said to have shown that this tends to keep the flanges in proper shape, and to wear the outer edge of the tires so as to keep the tread nearly true across them. As is shown in the cut, the tread of the wheel when it naturally runs on the rail is entirely relieved from the wear of the brakes. Another advantage is claimed in the fact that the flange is worn down as fast as the tread wears, and saves the track very much. The saving of expense by not taking the engines or cars from service when tires are being turned or wheels being removed is self-evident.

Somewhat similar devices have been used in Germany, and on some Scotch and English lines, but they do not appear to have been so successful as the brake blocks used by Mr. Ross. The trouble was caused by the blocks unduly heating the flange, which contains a smaller body of metal than the tread of the tire. In this case the flange was thus rendered soft and wore away too quickly, and in other cases small transverse cracks appeared across the flange, caused presumably by the excessive heating and subsequent cooling of the flange in snow or water lying on the track. As used in this country we understand that no such difficulties have been met with, and as it is certainly most desirable that tires

temperature has increased to such an extent that sounder forgings can be made.

By stirring the fires, and using plenty of coal, a dense black smoke was purposely produced, but on pulling a loose brick out of the wall of the furnace the smoke entirely ceased, and the top of the chimney became quite clear. This took place in the scrap furnace, and on looking into it we could discern a similar resemblance to the electric arc, but when smoke was issuing from the chimney, the furnace was full of dull-red flame. If continued in this state for a short time the temperature of the furnace would have been much

and immediately began hauling in on the switch, the head brakeman, whose duty it was, opening the switch, which was about 750 ft. from the depot. While the train was hauling in the engineer saw train No. 54 coming and opened the throttle valve, and while trying to get in on the side track the train was struck by the engine of No. 54. The engine, tender, baggage-car and first coach were in about 80 ft. when the car was struck and stripped of its siding, but no one was injured. The smoker received the full force of the collision, the engine striking the corner of the car and completely demolishing it, killing three passengers and seriously injuring



SMOKE PREVENTION.

reduced, to the detriment of the economical working of the iron. There were other furnaces for heating and bending, flangeing plates for the interior of fire-boxes, for making springs, for flangeing copper plates for the fire boxes at one heat, and for the flangeing of iron plates, not forgetting the fire furnace and furnaces for other purposes. There were also several boiler furnaces, some double-flued ordinary Lancashire boilers, and some Cornish boilers, and fixed locomotive boilers, and most of the furnaces had steam boilers attached, of a vertical kind, with one flue through them, and a short iron chimney on the top. In fact, there was nearly every variety of boiler and furnace at work, and no smoke could be observed coming out of the tops of chimneys. Every one of these furnaces has had a long and fair test, and has come out successful.

The ashpit of the large heating furnace in the forge is shut up by a couple of doors, and the plate for putting in the coal is of the usual form, but a tube about 3 in. diameter is conveyed to this closed ashpit, and a small steam jet is used so as to blow a mixture of air and steam into the ashpit, the steam and air passing into the furnace through the grate. There are also small apertures in the back wall of the furnace that allow air to enter. To regulate the admission of air and steam in the desired quantity a cock is used on the steam pipe of the nozzle, and a loose brick is also fitted in the side of the furnace, which can be taken out at will. All the furnaces have sufficient space for air to pass into them, and they have all a forced draught either by the use of steam or by the use of a fan. In one that was visible we noticed a 2 1/2 in. pipe taken from the blast pipe of a common smith's hearth, which was out of use, and gave sufficient air to a furnace of considerable size.

The boiler furnaces are also perfect preventers of smoke, but are arranged in a somewhat different manner. The principle, however, is essentially the same. For instance, take the ordinary two-flued boiler, in which case, at the three-way cock shown on the drawing at A, are attached pipes Bc, made of copper, for conveying steam to the furnaces as shown, bent so as to deliver the jet of steam on the fire about 2 ft. from the door of the furnace. A slot is made in the fire-door, as shown at D, for the purpose of admitting air, about 4 in. long and 1 in. wide. When the fire is stirred up or fresh coal put on, the three-way cock A is opened, admitting steam to both pipes Bc, the jet of steam playing upon the fuel and preventing the formation of smoke completely. In the Cornish boilers there is only one cock and one pipe. The admission of steam and air is similar to one of the flues in the two-flued boiler, and has the effect of completely preventing the formation of smoke. There is also a greater economy obtained by this system than without it. If the aperture for the admission of steam is too large, it will not answer the purpose so well, about 1/2 in. to 1/4 in. being sufficient diameter for the pipes. When the steam comes in contact with the fuel it is ultimately decomposed into its elements, oxygen and hydrogen. The first combines with the carbon, and forms carbonic acid, and the second gas being free combines with the oxygen of the air drawn in the furnace, and again forms water, and as the temperature of dissociation is about 4,132° F., it may have something to do with this chemical change. This system is not patented, but is open for any one to use, and may be applied to any form of boiler.

Accident Investigations by the New York Railroad Commission.

In the matter of the accident on the New York, West Shore & Buffalo road at Savannah, May 24, the facts developed by the testimony taken before a coroner's jury and Commissioner O'Donnell at the place of the disaster show that train No. 51 is a train leaving New York city at 9:30 a. m., and running to Rochester. It is known as the Rochester express. Dennis Leary was the conductor from Syracuse. It left that city at 8:34 p. m., 19 minutes behind time. The train consisted, beside the engine and tender, of a baggage car, parlor car, an ordinary car and a smoker, following which were a baggage car and two coaches not in use, locked up. At Weedsport, 21.6 miles from Syracuse and 10.9 miles from Savannah, where the disaster occurred, the following order was received by Conductor Leary, "Meet first section 54 at Montezuma; meet second section 54 at Savannah." Answer was properly sent back, "Correct." Train No. 51 had the right of way. The first section of the train was passed by No. 51 at Montezuma—the train leaving this station at 9:35 p. m., 10 minutes behind time. The train arrived at Savannah at about 10 minutes behind schedule time,

seven—one of whom has since died—and slightly injuring the pilot and fireman on train 54. The first empty car was also demolished.

The colliding train, No. 54, known as the Atlantic Express, was running in two sections, the first section passing No. 51 at Montezuma, as before stated. The second section consisted of the engine, tender, one baggage, two day coaches and two or three sleepers, containing about 35 passengers. H. C. Eby was conductor, Ephraim Steiner engineer, and John George Roberts was on the engine as pilot, to instruct Steiner, who was new to this division of the road.

The conclusions reached by the Board are as follows:

"The Board finds that this disaster was the direct result of a disregard of a special order for which the pilot John George Roberts is largely responsible. It was his duty to have known the contents of the order received at Newark—and if his own story is true he was culpable, for he did not at any time inquire or ask the engineer as to the contents of the order. His story, however, is incredible, and the conclusion from the facts and testimony in the case is irresistible that he did know the contents of the order. He was an experienced pilot, well acquainted with the road, sent to Newark to pilot the engineer of the train over a part of the road new to him. Had he realized his own responsibility he would have read the order at Newark or immediately inquired its contents—he swears he did neither. Had he been on the lookout at Savannah station he would have seen the green and white light on the platform—the stop signal for the train. The testimony shows that the train was under full control of the engineer before approaching the station and might have been stopped had the signal been seen. In any aspect of the case the pilot is highly culpable and responsible for the disaster.

"The engineer, Ephraim Steiner, also shares the responsibility. It was his duty to have read the order at Newark to his fireman. This he neglected to do. It is hard to see how a vigilant, careful engineer, notwithstanding having a pilot aboard, should dash into a train under such conditions.

"The conductor swears that he pulled the rope giving signals twice to stop, which, had they been obeyed, the collision would not have happened. Both Steiner and Roberts swear that no signal was heard. There is some doubt whether the gong was in order, although the conductor swears that it was, east of Buffalo.

"The Board recommends that John George Roberts be turned over to the District Attorney of the county to be dealt with according to law for criminal neglect in the discharge of his duties as pilot. The Board also recommends that the hill west of the depot at and near the same be removed so as to give a clear and unobstructed view of the station for at least 1,000 ft. to trains coming east."

Discrimination in Suburban Rates.

In the case of the Selectmen of Arlington vs. The Boston & Lowell Railroad Co., heard some time since, the Massachusetts Railroad Commissioners have rendered the following decision:

The Selectmen of Arlington, at the request of many citizens, complain that the rates of fare between Arlington Heights and Boston are unreasonably high, and especially that they are too high in comparison with other points on the same road.

The rates are as follows, the distance being eight miles: Single tickets are 20 cents, 10-trip tickets \$1.40, 100-trip tickets \$12.60, season tickets, three months, \$14. The chief objection was to the 100-trip tickets.

Without considering the reasonableness of these rates in themselves, the following table of fares on the branch shows the grievance of which especial complaint is made:

Station.	Miles.	Single passage.	10 ride.	100 ride.	Season, 3 mos.
Arlington	6.5	\$0.99	\$0.99	\$8.00	\$13.50
Battle Station	7	18	1.20	10.80	
Arlington Heights	8	20	1.40	12.60	14.00
East Lexington	9	23	1.60	14.40	15.00
Pierce's Bridge	0.5	24	1.75	15.75	16.00
Munroe's	10	25	2.00	18.00	18.00
Lexington	11	28	2.00	14.60	16.00
North Lexington	12.5	33	2.50	22.50	17.50

It appears, therefore, that to the rate for a passage of 6 1/2 miles to Arlington Centre 57 per cent. is added for the 1 1/2 miles beyond Arlington Centre. The passenger riding on a 100-trip ticket to the Centre pays \$1.23 for 100 miles.



THE ROSS BRAKE SHOE.

should be worn uniformly, it is to be hoped that the Ross shoe will continue to be successful. The wear of locomotive tires in shifting and suburban service is necessarily very great, and many will welcome any device which will distribute this wear over a surface 5 1/2 in. wide instead of concentrating it on a tread of only half this width.

Any further information may be obtained by addressing Mr. George B. Ross, Buffalo, N. Y.

Smoke Prevention.

From the *Mechanical World* we condense the following:

In the Lancashire & Yorkshire Railroad Works there are about a dozen furnaces of all kinds at work making no smoke. When we entered the yard a locomotive crank-shaft was just being brought out of one of the furnaces and placed under the steam hammer. When the iron was withdrawn the intense heat could not be much below the temperature of dissociation, or about 4,132° F., which, in the interior of the furnace, when observed by the naked eye, shows a bluish white color, similar to that of an electric arc light. This heat was obtained without the production of smoke. Since the furnaces were prevented from generating smoke, their

The passenger continuing his ride to the Heights pays \$3.66 for his 100 miles which he rides between those two stations. No good reason is given for this gross discrepancy. The management admits that it is a discrimination against the Heights and in favor of the Centre, and assigns no cause for it except that it is the intention of the company at some future time to give to the Centre further advantages in the form of a loop line. This intention seems to the board to have no bearing upon the question. And we fail to see how the present disadvantages of the inhabitants of the Heights, as compared with those of the Centre, can even be palliated by the prospect that at some future time they will be greatly increased.

The two places, Arlington and Arlington Heights, are competing with each other for residents. The discrepancy in the price of tickets is an undue advantage to one and a prejudice to the other. This in regard to passenger rates is not forbidden by the words of any statute. But it is unfair and unjust, and therefore unreasonable, to impose such a disadvantage upon any place. It is not right to make the customers of the road at one station pay excessively high fare in order that those at the next station may ride at a rate exceedingly low.

It is hard to answer those who ride a long distance over the road, when they complain that their rates are higher per mile than those of persons riding a very short distance. But it is impossible to answer these complaints when they come from persons riding in the same train, living in the same town, situated in the same way, and suffering this enormous discrimination because they ride a mile and a half further than their neighbors. The testimony shows that a large number of persons live at Arlington Heights whose daily business calls them to Boston—a larger number in proportion to the whole number of passengers than those residing in Arlington Centre. This is the class in whose favor the system of low suburban mileage is sometimes established. Without deciding that this discrimination can never be properly allowed, it is enough for the present case to say that in our view so great and sudden an increase of the mileage rate can never be justified; that here there is no one circumstance to justify it.

The board therefore informs the Boston & Lowell Railroad Co. that it regards the fares to Arlington Heights, and especially the rates for 100-mile tickets, as compared with those to Arlington Centre, to be so excessive as to constitute an undue and unreasonable disadvantage to the residents of Arlington Heights, and that in order to promote their accommodation it is reasonable and expedient promptly to revise and reduce those fares, so as to do away with this injustice.

The Ya-dimasters' Mutual Benefit Association.

The tenth annual convention of this body was held in Atlanta, Ga., in June last. The main object of the Association is to provide for the widows and heirs of deceased members. The convention was attended by over 100 delegates from various parts of the country. The following officers were elected for the year 1884: President, James C. Campbell (Pennsylvania), Derry, Pa.; First Vice-President, W. I. Kenney (Illinois Central), Cairo, Ill.; Second Vice-President, Justin J. Catlin (Pennsylvania), Jersey City, N. J.; Secretary and Treasurer, Joseph Sanger, Indianapolis, Ind.

The President announced that the society was in a flourishing condition, 387 new members having been added during the past year, the total membership being now 910. The receipts during the last year were \$8,442 and the expenses \$7,084, leaving a balance on hand of \$1,358. The membership has been further increased since the date of this report. The Secretary's salary was increased, and a member charged with having obtained passes on false pretenses was permitted to resign. The wife of a member having been assassinated in Atlanta by a ruffian, during the convention, a vote of condolence was passed.

The *Railway Conductors' Monthly*, published at Elmira, N. Y., was chosen as the official organ of the Association.

After some discussion, Philadelphia was selected as the place at which the next convention would be held.

TECHNICAL.

Locomotive Building.

Mr. J. Aug. Durgin has taken charge of the New York Locomotive Works at Rome, N. Y., as Vice-President and General Manager, and will have their entire management. Mr. Durgin is well known from his long experience at the Pittsburgh and the Rhode Island Locomotive Works, and his reputation is a guarantee of the excellence of the future product of the shops at Rome.

The Cooke Locomotive Works in Paterson, N. J., have completed an order for seven mogul freight engines for the Elmira, Cortland & Northern road.

The Lehigh Valley Railroad shops in Wilkesbarre, Pa., have recently turned out a locomotive which is intended to make fast time with heavy passenger trains. The engine has 18 by 24 in. cylinders, driving wheels 5 ft. 6 in. in diameter. The boiler is 54 in. diameter of barrel, and has 236 tubes 10 ft. 5 in. long. The fire-box is intended for burning anthracite coal, and is 43 in. wide and 11 ft. long. The boiler is of steel and has butt joints riveted throughout. It is to run on the New York Division between Jersey City and Easton, and it is expected that several more engines of the same class will be built.

The Baldwin Locomotive Works in Philadelphia give notice that the recent fire in their works will cause no important delay in the completion of orders. The men employed in the burnt shop have been transferred to other parts of the works and there is a sufficient number of tools in the remaining shops to carry on all the work in hand. The works have recently taken a contract to build 75 heavy freight engines for the Wabash, St. Louis & Pacific road, and last week delivered to the Raleigh & Gaston road a freight engine with 16 by 24 in. cylinders and a heavy switching engine with 16 by 22 in. cylinders.

H. K. Porter & Co. in Pittsburgh are building narrow-gauge engines for the St. Joseph Valley road in Michigan and a railroad in South America; also a shifting engine for the works of Oliver Brothers & Phillips in Pittsburgh.

Car Notes.

The Pullman shops at Pullman, Ill., are completing an order for 16 new sleeping cars for the Pullman lines. Two of these cars are already running between Boston and Bar Harbor Ferry, over the Eastern and the Maine Central roads, and several others are to run on the New York, West Shore & Buffalo road. These cars are 69 ft. long and have 34 seats or berths, besides 7 chairs in the smoking room.

The Concord Railroad Co., it is stated, has adopted the United States automatic car coupler, and will have its freight cars equipped with this coupler hereafter. Tests of this coupler have been in progress on the road for some time.

Bridge Notes.

The Keystone Bridge Co. in Pittsburgh is very busy, having the Henderson bridge over the Ohio, the Fort Deposit

bridge over the Susquehanna and a large number of smaller contracts to be filled.

H. G. Hopkins & Co. in St. Louis are busy, with several contracts for highway and railroad bridges to be filled.

Iron Notes.

The Lawrence Iron Co. has been organized at Columbia, Tenn., and has purchased the Tucker ore bank in Lawrence County, Tenn., and intends to build a blast furnace at Columbia. F. J. Ewing is President of the new company.

Of the 18 blast furnaces in the Mahoning Region, six only are now in blast and twelve are out of blast. The six furnaces in blast are those of Andrews & Hitchcock, at Hubbard; the Mahoning Valley Co., at Youngstown; the Ohio Iron & Steel Co., at Lowellville, the Girard Iron Co., at Girard, and the two stacks of the Briar Hill Iron & Coal Co., at Youngstown.

The South Tredegar Iron Co., in Chattanooga, Tenn., is running its nail and spike mills full double turn, making 4,000 kegs of nails and 20 tons of railroad spikes per week. The Morden Frog & Crossing Co. has erected a building 300 by 100 ft. at South Chicago for its new works.

The McKinney Tubular Rail Co. recently purchased a rolling mill at La Grange, Ill., and will, it is said, put it in operation making its patent rails.

The works of the Buffalo Forge Co., in Buffalo, N. Y., are to be enlarged by two additional buildings, one 60 by 125 feet and the other 75 by 185 feet. The buildings are to be completed by the close of the present year.

The Rail Market.

Steel Rails.—Prices are even lower and quotations are now put at \$27.50@\$29 per ton at mill, for cash orders. The low prices have attracted buyers, and much inquiry is reported, with a fair prospect for plenty of work for the mills.

Rail Fastenings.—Quotations continue nominal at \$2.35 per 100 lbs. for spikes in Pittsburgh; \$2.50@\$2.75 for trackbolts, and 1.70@1.75 cents per pound for splice-bars. The market is still weak and actual sales are below the nominal prices.

Old Rails.—The market is somewhat firmer and sales of old iron rails are reported at \$19@\$19.50 per ton for tees at tidewater and \$20.50 for double-heads. Pittsburgh quotations are \$20@\$20.50 for American rails.

English Bridge Notes.

Matheson & Grant's Engineering Trades Report for July says: "Owing to the lessened demand for ship plates, more attention is being given to the rolling of steel for miscellaneous purposes, and the variety of sections available to bridge builders is increasing, and a wider competition brings prices nearer to those of iron. The larger angle, tee and channel sections are already as cheap in steel as in iron. Steel joists are being made in the North of England, and if what is now little more than an experiment succeeds, English steel joists may diminish considerably the import of Belgian iron joists, a large proportion of which are of the lowest possible quality. Large works for making steel by the basic process are projected. The manufacture of steel castings is extending, and with the idea that the Bessemer system may prove successful on a much smaller scale than has been generally associated with the system, engineers who have hitherto bought their castings, and ironfounders who wish to meet the demand for steel, are adding to their works small Bessemer plant with converters of about one ton capacity. The Terre Noire process for producing steel castings free from blow-holes has already proved very successful. The application of machinery to the manufacture of iron structures has been much improved during the last few years; portable as well as fixed hydraulic riveters are now almost universally used, and multiple drills form a more important part of factory equipment than formerly. The English system of riveted connections is still preferred to the American plan of links or 'eyebars' with pin connections, and though bridges according to the latter method come into competition with English bridges in South America, and have even been imported into the Australian colonies, the English riveted bridges are preferred where stability and permanence are valued. Steel is becoming more used, as its price approaches that of iron. Besides the Forth Bridge, which will require about 10,000 tons of steel per annum for the next four years, steel bridges over the Hooghly, and the Indus, are being made for the Indian railways, and will do much to render engineers and manufacturers acquainted with its use. The long proposed bridge across the Thames by the Tower will probably soon be built."

An Old Tunnel.

After years of exertion the present Governor of Samos Abyssines Pasha, has succeeded in uncovering the entrances to a tunnel of which Herodotus speaks with admiration as the work of Eupalinos and Megairas, and which, according to the same authority, was built during the tenth century B. C.

The tunnel, about 5,000 ft. long, was intended to secure a supply of fresh water to the old seaport town of Samos, and consists of three parts. These are: The tunnel proper, 5% ft. high and 6 ft. wide; a canal about 5 ft. deep and nearly 3 ft. wide which runs in the middle or on the side of the base of the tunnel, and the aqueduct running in this canal. The aqueduct consists of earthen pipes, each 2½ ft. long, 32 to 33 in. in circumference, the sides averaging about 1½ in. in thickness. Every other joint has a hole, for what purpose has not yet been fully explained. Mr. Stamatiaides, a Greek archaeologist, believes that they were intended to facilitate the cleaning of the pipes, and to make the flow of water easier. The canal is arched over, but 28 man-holes were provided to admit the workmen who were charged with cleaning and repairing the aqueduct. The tunnel is not quite straight, forming an elbow about 1,300 ft. from one of the entrances. This elbow, according to Stamatiaides, was caused by a mistake in the calculations of the engineers, who had none of the instruments used in tunnel building nowadays. The tunnel starts near a small water-course which may have been quite a stream in olden times, pierces the mountain Kastri, which was formerly crowned by the fort Samos, and ends a few hundred yards from the old town of Samos, about 10 ft. below the surface. From the mountain slope to the city this subterranean aqueduct is protected by a massive stone structure, ending within the walls of the present convent of St. John. The preservation of this work—which is truly wonderful, considering the imperfect mechanical resources at the disposal of its builders—for nearly three thousand years, is probably due to the care taken by Eupalinos, who, in all places where the rock did not seem of sufficient firmness, lined the tunnel with several layers of brick, running on the top into a peaked arch.—*Exchange.*

Bad Riveting.

A correspondent of the London *Engineer* says: "An Australian expert in describing the bad riveting of various plate and girder bridges—sent to this colony under an eminent English engineer's inspection—says: 'I know that many parts of the various girders I have personally examined would not retain Scotch porridge cold.' To non-professionals this seems a curious sort of expression to find in a profes-

sional and official report. Possibly, however, it is merely an occult professional technicality for describing badly riveted work." It appears that one set of engineers order the bridges and construct the line, and hand over the railroads when completed to a distinct set of engineers, who have to maintain the lines, and who, by way of making things pleasant, hunt up all the faults and bad rivets.

English Locomotive Notes.

Matheson & Grant's *Engineering Trades Report* says: "Locomotive builders continue as busy as during the last few years, and it is difficult to place orders except for deferred delivery. Judging by the considerable contracts in progress, no reduction of the present activity is possible this year. This briskness of trade naturally tends to the opening of new factories or the extension of old ones, but the productive capacity of the country is so great and the remembrance of low prices that prevailed in 1878-80 is so keen that capitalists hesitate to invest in this branch of manufacture. The London & Northwestern Railway Company seem satisfied with the compound engines they have been making during the last few years at Crewe, and are making these engines in increased numbers, not only for long-journey traffic, but for their suburban lines."

THE SCRAP HEAP.

On the Train.

On a train the other day was a newly-married couple, the bride appearing to be about 25 years old and the groom being a dapper little chap a year or two younger. A lady took a seat, and after a few minutes she heard the pair criticizing her bonnet and cloak and general style. Without showing the least resentment in her countenance, she turned round in her seat and said, "Madam, will you have your son close the window behind you?" The "son" closed his mouth instead, and the "madam" didn't giggle again for 15 miles.

The Romance of the Railroad Career.

A writer in the *New York Commercial Advertiser* has evidently no fear of cautious bank managers, irate shareholders, bears, rate-cutters, or even car-coupling cranks, and poetizes, as follows: "He had often laid before himself the career of a successful railroad man as preferable to almost all others. There was something solid and yet romantic in it that gave it in his eyes a powerful attraction. It was based on iron. It bound the world together. The machinery was noble; and those smoking bolts of trade, discharged with precision, sped along their appointed tracks like the stars in their tangled orbits. The locomotive is the most human of machines; it breathes, eats, works, and sleeps; it is emotional; has the sulks, groans and pants under heavy tasks, yet rejoices in its strength; is patient and resolute, and finally rushes proudly home on time; it is a thing to love, and men have died for it. Then as a business the carrying trade was most alluring to him through its enormous bulk, its usefulness, the honesty and nicety of attention it involved, the high and various intelligence demanded, the stalwart attributes of human nature, energy, fidelity, competence, virtue, courage and the like called into action, and the opportunity and scope it furnished for the most splendid ambition. And of late its political bearing had impressed him. There was a time when gentility chiefly consisted in killing people, and the warrior, or professional homicide, was the greatest man; but the new kings are the kings of trade, and our new nobility boards of directors. Hence, he longed for the wealth, power and standing of the successful railroad man."

Prizes for Station Agents.

A committee of the board of directors of the Boston & Maine Railroad will, during the present month, inspect all the stations and station grounds of the road, and award three prizes to such agents as the committee decide have kept their grounds and station in the best and most attractive order. The first prize is \$50; second, \$30; and third, \$20. Each station master will be allowed from five to ten dollars for flower seeds and expenses, regulated as to the degree in which the station grounds are shown to have improved in appearance.

A similar system is adopted on the Erie and the Northern Railroad of New Jersey. On the Northern Railroad the prize has been for two years taken by the agent at Grandview-on-Hudson, and this year there is a sharp rivalry, which has resulted in making a number of the stations on that suburban line perfect flower gardens, and very attractive to the traveler.

Supplying Grand Army Reunion Badges.

The Passenger Department of the Union Pacific road announces the Grand Army reunion at Fremont, Neb., in the first week of September, and the readiness of the road to carry passengers there, by an offer to send to all Grand Army posts a supply of badges to all comrades who wish to attend the reunion. The badges are very neat, consisting of a blue ribbon on which are stamped in gold the insignia of the Grand Army of the Republic, with the date of the reunion and the name of the road, and will serve not only as badges for use at the time, but as souvenirs which can easily be preserved.

A New and Startling Invention.

A correspondent writes: "There seems to be a very grave omission in your article, 'A New and Startling Invention,' in your issue of Aug. 1, 1884. There is no way described of determining which locomotive is to assume the ascendancy; both, I believe, are to carry the inclined plane, and there should be an arrangement for rendering the upper one useless."

The inventor's plan is that the inclined plane shall be carried only by trains going in one direction. This he says can easily be arranged; for instance, on a given road on Monday, all the east-bound trains shall be the inclined plane or under trains; on Tuesday the west-bound trains shall be under, and so on. After all, when a really great invention appears, one should not worry about little matters of detail.

The Baggage-Smasher Foiled.

An Aged Trunk sat back in the dark corner of the car and refused to budge when the baggage-gentleman called him out. The baggage-gentleman in great wrath advanced and seized the venerable Saratoga by the handle.

"Gently, friend, gently," said the Trunk, "that thing you have hold of was not made to lift me by."

But the baggage-gentleman gave it a yank that pulled it out by the roots, and then, with violent language, he upbraided the trunk for not holding on.

"I have nothing to do with getting out this baggage," replied the Aged Trunk, "my sole mission and duty in life is to get on the wrong train. Failing in that, I am content merely to go to the wrong hotel, although I would prefer to

lose my check and get lost entirely. You will find the remaining handle at the other end."

The baggageman walked around and caught hold of the surviving handle. By placing his feet against the end of the trunk and holding on with both hands, he was able to pull off this one in three strong pulls. Then the Aged Trunk closed its eyes, leaned back, and simply said :

"And this is where I must get off, too."

The baggageman wept. He had now to stoop down, put his arms around that trunk, pick it up bodily, and carry it to the car-door. He did so, but the exertion broke his back in three places. He determined that he would not die unavenged, so he buried the now hopeless trunk upon the iron-bound truck that awaited it. Then, as he heard the awful crash that announced the ruin he had wrought, he sank to the floor of the car, saying :

"I die happy."

But a comrade looked in the car and said, sadly :

"Missed yer tip, Bill!"

" Didn't I bust the trunk?" he asked, faintly.

"Naw, only wrecked an express truck."—*Burlington Hawkeye*.

Does not Apply to Railroad Men.

A genius in the hardware line has devised luminous door knobs which he advertises will "shine all night." Anybody can find the door knob in the dark, but the key hole is what bothers most men who stay out late. A luminous key hole would "fill a long felt want." Where is the hardware manufacturer that will bring out luminous key hole trimmings?—*Exchange*.

At the Water Tank.

A railroad water tank is not usually a romantic place, but there seem to be exceptions in Texas. The Paris correspondent of the *Fort Worth Gazette* in a recent letter says :

"A moonlight party was given last night at the railroad tank west of town in honor of Miss Fanny Dorchester of Sherman, the guest of Misses Wortham. About twenty couples participated in the enjoyment of the occasion. A very elegant supper was provided by the young ladies and partaken of by all with considerable zest. One of the happy party, with his companion, was lost amid the beauties of the scene and the soft light of the silvery moon, and did not arrive upon the banks of the moonlit lake until the night was far spent."

Depot.

Two well-meaning men, one from St. Louis and the other from St. Paul, had an argument in the Sherman House on the pronunciation of the word *depot*.

"I say it is 'dee-po!'" said the St. Paul man.

"And I say it is 'day-po!'" answered the St. Louisian. In the course of time they put up \$5 apiece and agreed to leave it to a tall, fine-looking man on the other side of the rotunda.

Going up to him, the St. Paul disputant said: "My friend and I have a small bet on the pronunciation of the word 'dee-po.' I say that it is 'dee-po' and he says it is 'day-po.' Now who is right?"

"Pardon me," replied the stranger, "but I never heard the word before. How do you spell it, and what does it mean?"

The betting men looked at each other dubiously, and one said: "D-e-p-o-r, a railway station."

"Oh, yes, yes; excuse me. You mean 'dep po' of course. 'Yes, yes, depo. It is pronounced 'dep-po.'"

"Look here!" yelled the St. Paul man, "where did you come from?"

"Boston, sir."

"Well, there can't no Boston man settle a bet for me on the English language. Come on, let's interview Carter Harrison."—*Chicago News*.

A Horse Joke on the Engineer.

A series of interruptions occurred on the train due here on Saturday morning from the West on the Central. When leaving Syracuse a car laden with horses en route from the West to Saratoga was connected with the train. The train had scarcely got under way when the bell-cord was jerked and the engineer warned to stop. The brakes were shut down and inquiry made along the train as to what was the matter. The trainmen all denied pulling the cord, and after an examination as to the cause, without result, the train got under way. Scarcely 500 yards had been gone over, however, before the bell-cord was again pulled, and the train brought to a stop. Another inquiry and examination along the train failed to reveal the cause, and another start was made, when, for a third time, the mysterious signal was sounded. This time another thorough investigation was made, which was equally fruitless. Once more was the train started up, and again the warning signal was sent to the engine. This time, when a stop was made, it was determined to ascertain whether any other than human agency was responsible for the signal, and the train was carefully gone over. When the car containing the horses was reached a jerking of the bell-rose was noticeable, and on further examination it was found that one of the animals in the car, finding that the bell-rose was within reach, had amused himself by seizing it with his teeth and jerking it to and fro. —*Albany Journal*.

Tramps.

On the platform of this railroad town of the past year the correspondent was left standing a few nights ago with the miserable fact staring him in the face that he had a long wait of six hours before him, with nowhere to go, nothing to read and not a thing to do. Strolling to the end of the platform, a man was discovered seated on a truck and swaying his legs to and fro with the easy grace and devil-may-care abandon of one to whom time was no object. Away to the right of the track, the moon, just emerging from a cloud, lighted up the yellow tide of the Rio Grande, along whose swollen banks in the gloom of the cottonwoods sparkled fully half a dozen camp-fires.

"A freighters' camp!" inquired the correspondent of the gentleman on the truck.

"No; tramps," he ejaculated. "The country is alive with them, and it's getting worse," he added, "every day."

"I suppose brakemen and conductors have quite a time preventing them from stealing a ride?"

"Yes, but it's lost labor. There's not a train goes over the Santa Fe road that doesn't carry from half a dozen dead-beats up, and this line has got the name among tramps of being one of the hardest lines to beat in the United States."

"How is the racket worked?" queried the scribe.

"Well, there are lots of ways. The old 'vets' use the 'universal ticket,' which is good on every railroad in the United States and the Canadas, while beginners work the box-car and the 'blind' baggage. The 'universal ticket' is a small, thick board about a foot and a half long and three to four inches broad; a groove is cut midway in it deep enough to allow it to sit without slipping across any of the connecting rods or the brake-beams of a freight car. Once safely under the car the tramp fixes his board, which gives him an A 1 seat, and as long as he don't fall asleep he can travel in perfect safety. No one can see him except by getting under the car, and neither freight conductors nor brakemen have time for that."

"Fellows who are a little too nervous for the universal

ticket 'rv the box-car 'racket.' They watch cars that are being loaded for some point they want to go to, and manage before the car is sealed to get in and hide themselves away with some grub and a bottle or two of water. The wool cars that leave Las Vegas are infested with these tramps. You see the cars are not loaded by the company, but by the man who charters them, and the laborers are only too ready to help a fellow to stow away. Sealed cars are never opened until they reach their destination, and, once locked in, the tramp is safe from all interference until the end of the journey."

"Rather rough, I should imagine, to be locked up with limited rations in the season of wash-outs?" broke in the scribe.

"Well, no. Your tramp always brings along with him a flat plate, by the aid of which he can always pry back the door sufficiently to squeeze the body out at any time. The chains to which the seals are attached are nearly always long enough for that. For short journeys tramps prefer to ride on the blind baggage. The blind baggage is the car right after the locomotive. The tramp, when he sees a passenger train about to move out of the depot, stations himself on the off side of the train from the platform and waits until the conductor has jumped aboard, when he lightly swings himself on to the front platform of the car and is safe until he gets to the next station. Of course the tramp must sit off and on at every stoppage, and so the blind baggage is usually used only for night travel. It requires a fellow to be smart, too, for conductors never jump on until the train is well in motion. I used to break on the San Marcial Division of the road until I ruptured myself and had to get a lighter job around the depot. The smartest tramp I recollect in my time had only one leg. He had a Grand Army of the Republic badge and used to make plenty of money in all the towns along the line from Deming to Raton. To see that fellow hop on and off the 'blind baggage' with that game leg of his, was a sight. We never fired him."

"Don't the engineers look out for tramps?"

"Not they. That is not part of an engineer's duty. He'd just as soon haul a tramp as not, and he hates the trouble of having to stop to put them off."

"Is the train stopped every time a tramp has to be put off?"

"Well, passenger trains are; but with freight trains it depends. If the brakemen are strong enough they make him jump for it. Sometimes the fellow alights all right, sometimes he gets hurt and an odd time he gets killed. When he gets killed you will generally read an item about an unknown tramp, while trying to steal a ride, having fallen between the wheels or something of that kind, but we know better."—*Las Cruces (N. M.) Correspondence San Francisco Chronicle*.

The Conductor Took a Hand.

Among the passengers on yesterday morning's southbound Denver & Rio Grande train were three men quite well known to the police of this city. One of these, the leader, is an old man with whitened locks, a white choker and a carriage so sedate that he has been given the name of one of Denver's most prominent divines. Shortly after the train had left the Union depot the staid old gentleman with the clerical look was seen to wander aimlessly up and down the cars and soon he was seen to engage the attention of two young men. In a few moments a friendly game of euchre was in progress. "Wonderful! wonderful!" suddenly exclaimed the fourth player in the game, who had been invited by the old man to sit in and make it four-handed. "I have a strong poker hand here; I'm willing to bet two to one on it and allow you all to draw to your bunks." The two young strangers had no money, and the euchre game was soon broken up. A few moments afterward two other young men were induced to join in a friendly game of euchre. This time it was the old man who suggested that he had a powerful poker hand. Strange to say the strangers also had hands of the same kind, and were willing to stake a little money on them. There was a diving down into in-idea vest pockets and considerable money was produced, when the eagle-eyed conductor stepped up.

"You'll have to give me those cards, gentlemen," he said, making the request good by at once taking possession, and noting that the "suckers" had full hands against four big kings held by the old man who played nothing but a friendly game of euchre. "Young gentlemen, you'd better go back to your seats and stay there; you'll have more money when you reach home. As for you, Doc Jeffery, I'll throw you off if you try to play any bunko games on this train."

Three humiliated individuals sneaked off the cars at Castle Rock and tried to charter a hand-car to propel their way back to Denver, where conductors have no powers worthy of respect and where the lottery game is liberally patronized.—*Denver Tribune*.

ANNUAL REPORTS.

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ket from points on the line. The average passenger journey last year was 37.4 miles; the average freight haul was 62.1 miles. Locomotive service cost 27.8 cents per mile run.

The earnings of the Northern Division for the year were:

	1883.	1882.	Inc. or Dec.	P.C.
Freight	\$624,669	\$672,95	D. \$47,626	7.1
Passenger	600,044	539,241	I. 68,83	13.0
Mail and express	30,056	26,279	I. 3,777	14.5
Miscellaneous	27,744	27,584	I. 160	0.6
Total	\$1,281,513	\$1,257,349	I. \$25,114	2.0
Expenses	638,871	614,611	I. 43,950	7.3
Net earnings	\$623,642	\$642,508	D. \$18,866	2.9
Gross earn. per mile	6,484	7,132	D. 648	9.1
Net	3,153	3,044	D. 491	13.5
Per cent. of exps.	51.37	48.90	I. 2.47	...

The decrease in freight earnings was due to a light wheat crop on the line and to the holding back of grain for a better market by shippers.

The earnings of the Colorado Division and the Southern Division are reported by the lessee as follows:

	Southern Div.	Colorado Div.	Total.
Earnings	\$3,880,065	\$259,862	\$4,139,927
Expenses	2,990,123	186,476	2,276,599
Net earnings	\$1,789,942	\$73,386	\$1,863,328
Rental paid	1,650,600	307,597	1,958,197
Profit or loss to lessee. P. \$139,312	L. \$234,211	L. \$94,869	

The loss on the Colorado Division was due to the fact that no through business was done over it until near the close of the year, while the lease was made and the rental fixed when it was expected that the through connections would be made early in the year.

The income account for the year was as follows:

	1883.	1882.	Inc. or Dec.	P.C.
Net earnings Northern Division	\$623,642	62		
Rental Southern Division	1,958,197	04		
Redemption of bonds from land sales	300,000			
Other sources	43,645.27			
Total	\$2,925,484.33			
General and legal expenses	\$111,465.18			
Taxes and street assessments	250,478.74			
Interest	1,977,623.79			
Sinking fund	190,000.00			
Sundry accounts	78,890.75			
Total	2,518,464.46			

Balance, surplus for the year. \$407,019.87
Surplus, Dec. 31, 1882. 1,257,822.9

Balance, surplus, Dec. 31, 1883. \$1,664,851.96

This balance is not available for distribution, as it represents expenditures made in redeeming first-mortgage bonds.

The Colorado Division having shown a net deficit of \$234,212 for the year, for the reason that no through business was transacted over it until near the close of the year, the lessee (the Central Pacific Co.) made a claim on this company for the amount of the loss. The equity of this claim having been recognized, the amount has since been paid over to the lessee. This division is now in full operation in connection with the Atlantic & Pacific Railroad.

During the year the Santa Cruz Railroad, which is owned by this company and operated under lease, was changed from 3 ft. to standard gauge and otherwise improved.

The Loma Prieta Railroad has been completed into the Santa Cruz mountains. It is not owned or leased by this company, but has proved a valuable feeder to its line, bringing it to a considerable traffic in lumber.

During the year 35.78 miles of main line were renewed with steel rails, leaving only 5½ miles of iron in the track between San Francisco and Monterey. The equipment was kept in good condition, and the road-bed and track generally improved. One locomotive and 11 cars were added to the equipment of the Northern Division, and 21 locomotives and 449 cars were added to the equipment leased with the Southern Division.

The Chief Engineer reports that the line from Mojave to the Needles (Colorado Division) was completed during the year.

Surveys have been completed for an extension of the line, beginning at Soledad, thence following up the Salinas Valley and through the Polonio Pass to a connection with the line from Goshen to Mohave (Southern Division), at a point near Lerdo, a distance from Soledad of 163.06 miles. The location has been decided, and the right of way principally obtained for 50 miles.

Central Pacific.

The report of this company for the year ending Dec. 31, 1883, shows that at the close of the year the company operated the following lines:

	Miles.
Central Pacific main line, San Francisco to Ogden	883.23
" " " branches owned	331.91
Total owned	1,215.14
Leased lines:	
Southern Pacific, of California	790.33
" " of Arizona	384.17
" " of New Mexico	167.22
Pacific Improvement Co. (Colorado and Rio Grande bridges)	0.38
Los Angeles & San Diego	27.60
Los Angeles & Independence	16.83
Stockton & Copperopolis	49.00
Amador Branch	27.20
Berkely Branch	3.84
California Branch and branches	115.44
Northern R. R. and branches	153.63
San Fabio & Tulare	46.51
Sacramento & Placerville	5.64
Total	1,787.79

The average mileage worked for the year was 3,998 miles, against 3,041 miles in 1882.

The mileage of the Southern Pacific (of California) was increased 158.20 miles by the completion of the Colorado Division of that road to the Needles on the Colorado River. The lease under which the Western Division of the Galveston, Harrisburg & San Antonio road was operated was terminated Feb. 1, 1883, when the connection with the Eastern Division was completed and the line transferred to the owning company.

The equipment (including the leased lines) consists of 426 locomotives; 201 passenger, 47 sleeping, 96 emigrant, 4 smoking, and 97 baggage, mail and express cars; 4,713 box, 69 fruit, 2 powder, 8 oil-tank, 67 water-tank, 2,188 flat and 138 caboose cars; 4 officers' cars; 1 pay car, 16 station cars, 9 snow plows, 1 tie-machine, 11 mile-driver, 18 derrick and tool, and 197 work-train cars; 379 section, 460 hand, 30 push and 50 sail cars. The sail cars are peculiar to this road and are light cars fitted with a mast and sail instead of hand gearing as motive power.

This is an average per mile of road of 0.142 locomotive, 0.148 passenger train car, 2.726 freight cars, 0.086 service car and 0.308 hand and trackmen's car.

The floating stock includes 10 ferry steamers, 3 river steamers and 2 barges in good condition.

The Land Agent reports the cash receipts from trust lands,

including payments on cash and credit sales, interest, stampage, etc., at \$945,115. Sales of land during the year were 379,787 acres for \$880,680. The entire cash receipts from trust lands were paid over to the trustees, who report 574 land grant bonds redeemed at a cost of \$603,795. On Jan. 1, 1883, they held a cash balance of \$584,771, and on Jan. 1, 1884, this balance was \$926,090. Receipts from sales of non-trust lands during the year were \$22,498.

The general balance sheet, condensed, is as follows:

Liabilities:				
Capital stock		\$59,275,500.00		
Funded debt		32,625,600.00		
Government bonds		27,855,680.00		
Unclaimed dividends		84,243.00		
Bills payable and demand loans		5,420,600.00		
Accounts payable		2,289,157.23		
Sinking funds and special funds		1,924,051.06		
Profit and loss		24,978,988.33		
Total		\$175,453,219.62		
Assets:				
Road, equipment and improvements		\$153,213,266.81		
Sinking funds		6,933,044.17		
United States transportation and sinking fund account		8,532,462.65		
Materials and fuel		4,738,631.09		
Stocks and bonds		254,777.73		
Bills and accounts receivable		1,568,373.07		
Cash		212,682.10		
Total		\$175,453,219.62		

The report says: "The interest accrued upon the United States bonds issued to the Central and Western Pacific companies amounted on Dec. 31 last to \$25,956,475; of which \$8,532,463 had been repaid by transportation, cash and United States sinking fund. The balance, \$17,424,012, is not due and payable by the company until the maturity of the principal of the bonds (average, July 1, 1888); the sum of \$7,482,192 invested at 6 per cent. interest would suffice to liquidate this balance at maturity, and this latter sum, rather than the nominal balance, represents the true burden of this item of interest advanced by the United States and not reimbursed by company, etc."

The funded debt consists of \$26,083,000 Central Pacific first mortgage; \$2,735,000 Western Pacific; \$6,000,000 California; Oregon; \$2,050,000 Oregon Division; \$687,000 San Francisco; \$1,000,000 Alameda; \$6,080,000 San Joaquin Valley; \$5,375,000 land grant and \$3,285,000 income bonds. Included in the total above are also \$1,500,000 California state aid bonds, which matured and were paid July 1, 1884.

EARNINGS.

The earnings for the year were as follows, on an average of 2,998 miles in 1883 and 3,041 miles in 1882:

	1883.	1882.	Inc. or Dec.	P.C.
Freight	\$14,932,970	\$16,302,883	D. \$16,369,93	8.4
Passenger	7,945,826	7,474,216	I. 471,610	6.3
Mail and express	915,289	903,467	D. 48,178	5.0
Miscellaneous	950,336	92,191	I. 2,145	3.1
Total	\$21,744,421	\$25,662,757	D. \$918,336	3.6
Expenses	15,570,600	16,067,184	D. 496,584	3.1

	1883.	1882.	Inc. or Dec.	P.C.
Net earnings	\$9,173,821	\$9,595,573	D. \$421,752	4.4
Gross earn. per mile	8.254	8.47	I. 183	2.2
Net	3,090	3,153	D. 95	3.0
Percent of expenses	62.93	62.60	I. 0.33	..
Total	\$21,744,421	\$25,662,757	D. \$918,336	3.6

The decrease last year was wholly in local business, the through earnings showing a large increase. Local business contributed 63½ per cent. of the earnings last year, against 73½ per cent. in 1882.

The earnings of the leased lines were as follows:

	Through.	Local.	Total.
Freight	\$5,622,056	\$11,608,802	\$17,530,859
Passenger	5,028,544	12,124,619	17,153,163
Mail and express	1,727,233	15,780,830	20,508,113
Local	5,714,241	18,379,861	24,094,201
Switching	6,74,473	18,9,7284	25,662,757
Total	8,307,016	16,442,405	24,744,421

The decrease last year was wholly in local business, the through earnings showing a large increase. Local business contributed 63½ per cent. of the earnings last year, against 73½ per cent. in 1882.

The condition of the account with the United States is as follows:

	1883.	1882.	Inc. or Dec.	P.C.
Passenger train	2,805,449	19,781,255	I. 1,024,194	5.2
Freight	120,962,106	129,384,873	D. 8,422,679	6.5
Total	141,767,645	149,166,130	D. 7,308,485	4.9

Locomotive service cost 31.13 cents per mile run, the large amount being due chiefly to the high cost of fuel. Of the freight car mileage 25,625,736 miles were run by foreign cars.



Published Every Friday.

EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN OPINIONS, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

THE CHICAGO & NORTHWESTERN.

The weekly and monthly reports of the Chicago & Northwestern Railway Company, in spite of a considerable increase in mileage, have for some months past shown no increase in gross earnings. For the seven months of its fiscal year ending with December last its gross earnings were \$942,231 (6 per cent.) more than in the previous year, but for the five months ending with May which complete its fiscal year it suffered a decrease of \$3,441. An unofficial statement of working expenses for the seven months made last February showed that they had increased 12 per cent., and more in amount than the gross earnings, leaving a small decrease in net earnings from 1882, and a very large one (9 per cent.) from the net earnings of the last seven months of 1881.

This was an indication either that the company was finding less work to do, diversions by new competitors from its old lines more than equaling the growth of traffic elsewhere and the contributions made by its new lines, or that it was getting smaller pay for its work. The annual report, an abstract of which we published last week, shows that the latter was the case. Not only did the company work a larger mileage, but it carried a larger traffic in its last fiscal year than ever before. The increase in freight traffic was 14½ per cent., and in passenger traffic 3½ per cent., and for carrying it an increase of 10 per cent. in train service was employed. Having 7 per cent. more road to work and maintain and running 10 per cent. more trains, the increase of 7½ per cent. in working expenses needs no explanation. But by reason of a reduction of 2½ per cent. in the average passenger fare and of nearly 8 per cent. in the average freight rate, the increase in gross earnings was only 3.9 per cent., and in amount a little less than the increase in working expenses and taxes, leaving a decrease of \$129,652 (1½ per cent.) in net earnings. The freight traffic increased much more in proportion than the mileage, and it is the large reduction in the average freight rate alone that prevented a large increase in the net earnings, which were not only \$129,652 less than in 1882-83, but were \$1,165,355 (10½ per cent.) less than in 1881-1882, when the road was working 687 miles less road, the net earnings per mile meanwhile having decreased from \$3,642 to \$2,656—27 per cent.

Now while fixed charges have not increased meanwhile in proportion to mileage, they have increased. They were (interest, rentals and from \$83,000 \$98,000 for the sinking funds) \$5,666,947 in 1881-82, when the net earnings were \$11,045,000; last year, when the net earnings had fallen to \$9,880,000, the fixed charges had risen to \$6,178,939. An increase of \$511,992 in fixed charges following an addition of 686

miles of railroad and a considerable increase of equipment is very small, it is true—only \$732 per mile of road—but as no increase of income, but a decrease instead, has as yet followed the increase in mileage, the property has not that brilliant immediate prospect before it which made it so promising in the last half of 1882, when the common shares sold at more than 150 and the preferred at 171. The stockholders income—the profits of the road above fixed charges—was \$5,478,075 (\$14.70 per share) in 1881-82; it fell to \$3,700,728 (\$9.50 per share) last year, and only 30 per cent. of the decrease was due to an increase in the fixed charges, the other 70 per cent. from a decrease in the net earnings of a system of roads which has meanwhile increased 22½ per cent. in mileage.

It will occur at once, however, that in spite of the very large decrease of \$5.20 in the profits per share within two years, these profits remain very large. No company that earns 9½ per cent. in what is called a bad year, after three successive bad corn crops in the country where it gets probably two-thirds of its traffic, can be called unprosperous. Of course, if the downward course of profits should continue two or three years longer at the same rate, it would be a very serious matter, and it is probably because this company's profits per share have decreased largely at a time when they were expected and seemed likely to increase, and because of the feeling of uncertainty caused by so great a change, that this company's common stock, just after a year when it was shown to have earned 9½ per cent., sold down to 82, and has not since gone above 105. Probably people reason (if they reason at all about the matter) that if the profit per share can fall off \$5.20 in two years when the country was generally prosperous, what may not happen in two more positively bad business years. The change has been well calculated to create a feeling of uncertainty, though so far it has not affected nor come near affecting the dividends paid to the stockholders.

It is true that nearly all railroad stocks in this country are uncertain sources of income, and many are very uncertain. Nothing can ever make a steady income sure on a railroad so long as between two years a rival railroad may be opened close by on either side. In Iowa, for instance, when in 1879 there were 11.6 square miles of land to a mile of railroad, there are now less than 7.7 square miles; on the average the territory supporting a railroad has been reduced one-third. Iowa grows fast, but it hardly grows so fast as its railroads have, namely 50 per cent. in four years. Add to this the reduction in rates, partly due to increased competition, but largely to other necessities, and not possible to avoid, and we may see how the fairest railroad prospects may be blasted, and the most sagacious management fail of accomplishing the expected results. The only course is to do one's best and take the consequences, just as in everything else, but with less certainty as to what the consequences will be than in many other enterprises.

However, though the history of this company has shown that its profits are liable to great fluctuations, it has also shown that in the most unfavorable of recent years they have been decidedly large. Nearly the whole of the great additions to its mileage have been made in country where the traffic was yet to be developed, not like the Milwaukee & St. Paul's Omaha line, where an important traffic could be had at once by diversion from old roads with a heavy business. It was not reasonably to be expected that such new roads would earn the interest on their cost from the start; but if the growth and development of this new country are simply continued, they are sure eventually to contribute largely to the profits of the company, because the traffic developed on a new line of 50 miles in Dakota will be carried over 500 miles or more of old road further east. Now, so far, the growth of the country on the new lines of this and adjacent railroads, except possibly in Northwestern Iowa, of which we hear nothing, has been extraordinarily rapid down to this time, and though it may be less rapid hereafter, it assures within a moderate period a paying traffic on the new lines, except where rival companies have built them too close together. This development of a paying traffic may be slower than was popularly expected, it is true. It usually is; and there may be, and probably at this time is, a considerable reduction in the traffic of the older parts of the road, which for four or five years were profiting by the extraordinary industrial activity of the country. A small percentage of decrease on the old lines much more than balances a large percentage of increase on the new ones; but the growth of the new country has a decidedly favorable effect on all the business of the country next east of them.

The high price of this company's stock in 1882 evi-

dently was due to the expectation that the dividends would be increased, and the expectation was that there would be a new issue of stock to represent the increased dividend-earning power of the company, and the large additions made to its property without increasing its share capital, and to a considerable extent paid for out of net earnings. As the company had just earned \$14.70 per share, a continuance of this rate of profit would have made it possible to pay the old rate of dividend on a large increase of the stock. The large reduction of the profits per share since has made impossible for the present the large stock dividend then thought probable. The recent issue of \$14,757,500 in payment for the stock of the three Iowa companies whose roads have been leased heretofore makes an important difference in the value per share of stock of any such dividend representing undivided profits and increased earning power, because the amount of new stock or of profits divisible will have to be divided among more shares. The new stock adds 38 per cent. to the number of shares. What would have made a dividend of 50 per cent. on the old number will make one of only 36½ per cent. on the present amount.

Now, it is true that the terms of the lease were such that the rental was sure to increase if the road was prosperous, and might increase faster than the profits available for dividend. But stockholders have never taken this into account; they have reckoned the rental as a "fixed" charge, which it was in the sense that it could not be removed, but not in the sense that it was invariable. To repay the stockholders of these leased roads for their prospects of a larger rental, it became necessary to share with them the Northwestern's prospects for larger profits on its stock—prospects which seem not to have been valued when the contract was finally executed, however, as Northwestern common stock, for which a profit of \$34.54 per share had been earned during the three years just previous, was then selling at par or below.

Dividends at the present rate on the new issue of stock, together with the interest on the bonds assumed, will only equal the rental heretofore paid, but any increase in the dividend will be equivalent to an increase in the rental, and it must be borne in mind that hereafter the divisible profits must be divided among 536,898 shares instead of 399,323. The profit per share, if these new shares had been included last year (and therefore no rental paid), would have been about \$8.96 instead of \$9.50.

One thing promises well for the immediate future of this as well as other railroads west of Chicago, and that is the corn crop. For three successive years it has been light on the lines of this road, and last year was very light. This has materially reduced the traffic not in corn and the hogs fed with corn only, but in the shipments to the country which suffered from these poor crops. We may trace this to some extent by the receipts of corn and hogs by this road at Chicago, which have been:

	1880.	1881.	1882.	1883.
Corn, bush...	14,894,629	15,030,041	9,026,000	8,927,479
Hogs, No. . . .	1,218,041	1,051,640	1,065,368	1,130,195

This, however, does not adequately represent the diminished corn production, because the Northwestern increased the mileage it worked no less than 56 per cent. from 1880 to 1883, and a very large part of the new mileage was in Iowa, in a great corn country.

The crops, doubtless, on the whole determine the prosperity of the country which this company serves, but it is possible to count too much on the effect of a single good or bad one. A series of good crops made prosperity and a great growth in all non-agricultural industries; but this prosperity was hardly interrupted at the time of the general crop failure of 1881. The momentum and the resources of previous years maintained an activity which the agricultural returns of that year could never have sustained. Now when it has become evident that there has been an over-development of the non-agricultural industries during the past few years, one great crop is not going to restore the activity that prevailed from 1880 to 1882, which activity had much more to do than the immediate crop movement in giving the railroads good business. But good crops will certainly make the condition of things much better than it would be without them, and will prevent that degree of dullness in other industries than might otherwise occur.

Mr. Jewett's Administration.

It is reported that at the expiration of the present fiscal year of the New York, Lake Erie & Western Company, which will be the tenth of his service as President, Mr. Jewett will ask to be relieved, either by a division of duties which will leave less responsibility on his shoulders, or otherwise, and it is said that there is talk of making an organization similar to that

of the New York Central, with Mr. Jewett as Chairman of the board of directors, and a President or other officer responsible for the direct management of the railroad. In perhaps a majority of companies in this country the presidents give comparatively little of their time to their companies, which are actually managed by other officers; but in the case of the Erie the work of the President has been overwhelmingly heavy. When Mr. Jewett came to the company he had one of the most difficult administrative tasks that ever fell to the lot of man, made more difficult by the extravagant expectations of the shareholders, who had largely been duped into buying their shares by false representations of the ability of the road to make profits. Mr. Watson had certainly done much to clear the way for Mr. Jewett, but the demands of the controlling shareholders during his administration, resulting in the declaration of a dividend while the company was forced to borrow money on excessively hard terms, also caused the company to incur burdens which are heavy to bear, and further encouraged the extravagant expectations of shareholders. The organization of a new administration was well begun by Mr. Watson, who gathered about him many men of exceptional ability, several of whom still remain with the company; but the work that remained for Mr. Jewett may well have frightened away a man of the greatest energy, ability and courage, the more so because it was then evident to any one who examined the situation of the company and the property, that after doing the very best that it was possible to do, the expectations (at that time) of the shareholders could not possibly be realized. The property was to be recreated as well as reorganized, and its connections were to be established throughout a vast territory where its rivals had years before secured in their own interest nearly all the valuable railroads that then existed. This was to be done by a company with bad credit and an unprofitable property, surrounded by lines which had been provided with almost everything their managers desired to secure their economical working, and with connections established to nearly all the traffic centres of the country, and this at a time when the stagnation of business was the worst that has existed in this country since 1857, probably. Doubtless the hope and expectation that this stagnation would soon give way to activity encouraged efforts in 1874, and immediately thereafter, that would not have been made if the truth as to the future had been known; but even with these expectations the task of setting the Erie on its feet as a competitor on equal terms with the other trunk lines seemed nearly hopeless to those who knew its situation best. Of course nothing could reasonably be asked from the executive more than to do the best that was possible, but actually more was expected than was possible.

If the times had improved gradually after 1874, perhaps the work of establishing the Erie would have been more difficult than it actually was, because then the proprietors would have been unwilling to make the necessary sacrifices, which the continuance of bad business virtually forced upon them. And certainly the reorganization was completed at an exceptionally favorable time, just before the great and rapid increase of traffic and general prosperity, when the great improvements and additions needed could be had at the least cost, and as soon as completed found full employment, and in time to take advantage of the confidence of capitalists that resulted in a vast amount of railroad construction, to secure at comparatively little cost connections under its own control with the great traffic centres of the West. The result has been the establishment of the Erie on an independent basis as a trunk line, with great capacity and very cheaply worked, to a degree that seemed impossible either in 1874, or at the time of the reorganization in 1877.

There can be no doubt that the exceptional prosperity from 1879 to 1883, which made it possible to do so much for the Erie with so little, also had effects which tend permanently to reduce its earning power, for it caused a great multiplication of railroads throughout the country which this railroad serves, and a division of the traffic which much more than counterbalances its growth. There are four railroads now between New York and Buffalo, instead of two, and one of them is close alongside of the Erie for 200 miles. The result could not fail to be a great diversion of traffic. But this is something which no administration could have prevented. Even if it had been foreseen, it is hard to see wherein it should have greatly modified the policy of the Erie management. It made it not less but more necessary to secure Western connections, because the new trunk lines, when opened, would be competitors for them, and it did not obviate the necessity of making the road as efficient

as possible—capable of doing the best work at the lowest cost—though it did and will reduce the demands on its capacity. The rate of increase of traffic that would soon have crowded the trunk lines if the old ones had it all to carry, will not now have that effect for many years, unless the new trunk lines get much less than may reasonably be expected. But no administration of the old trunk lines could have prevented this, and therefore they cannot be held responsible for it. They can be held responsible only for that which it was possible for them to effect. Any one who compares the condition of the Erie now with what it was in 1874 must confess that immense progress has been made; that it now securely holds an immense traffic which then it either did not have at all or was liable to lose to rivals at almost any time; that it affords a greatly improved service, and that this better service is supplied at a much reduced cost. All this, it is true, has not brought it large profits; but where would it be without it?

Rumors of Cuts in Trunk Line Rates.

There has been some talk in the newspapers of demoralization in trunk line rates, which seems to have very little foundation in fact. It has been said that the West Shore is cutting rates in both directions. There is just enough basis to start a report of this kind. So far as west-bound shipments are concerned, the West Shore was allotted 10 per cent. of the business at the beginning of this year, and it has not carried so much as that proportion and accordingly has become entitled to, and at the regular periods has received, payments of money in lieu of the traffic awarded it but carried by other roads. At first traffic was turned over to it to make good its proportion. It was not always able to deliver this freight promptly, and shippers complained. Since that time the road has been permitted to secure its proportion of traffic as it can, and there is no doubt that it makes concessions from regular rates to secure it, which does no harm to any of the other roads so long as it does not get more than its proportion, and, as we have said, it is still behind. As it is paid for the traffic at full rates if it does not carry it, it may seem strange that it should accept lower rates for the privilege of carrying it. But it is not strange at all. The West Shore is engaged in building up a business, which it can never do by taking pay from the other trunk lines for freight which it does not carry. So long as it is at a disadvantage it may have to give lower rates than the other roads in order to secure a business; but by satisfying its shippers—giving them what it promises and improving its service—it will in time secure patrons and perhaps be able to secure, at full rates, a larger share of the traffic than is now allotted it.

Moreover, it is engaged in developing an east-bound as well as a west-bound business, and for that it has to depend upon connecting railroads west of Buffalo which do not depend upon it for an outlet, but have connections with other trunk lines which command more west-bound traffic. Now to induce these western roads to give it east-bound traffic the West Shore needs to have west-bound traffic to offer them in return, so that it may well be better for it to carry its 10 per cent. itself, even at a fifth less than the regular rates, than to be paid full rates for it by the other trunk lines, and leave it for them to dispose of. This is well understood and accepted, and does no one any harm. If the road should carry more than its proportion, it would be different. As it is, the other railroads prefer to have it take the ton of freight due it at \$8, rather than carry it themselves and pay it \$10 for it.

With regard to the cutting of east-bound rates, there has doubtless been some, but apparently the freight taken at the cut rates was never large in amount, and they were made only for a few days, and are said to have ceased entirely some days ago. They were made by a freight line that works over the West Shore and two connecting roads west of Buffalo, and by an extremely circuitous route from Chicago by which shipments had never been made. It could not be for the interest of either of the roads west of Buffalo to have this continue, and they promptly disavowed it and refused to share any rebates made to secure the shipments.

Probably the feeling that the West Shore is making trouble is due more to its efforts to secure local passenger traffic than to anything else. It has a large and fine passenger equipment, which it apparently is determined that every one on the line of the road shall test, as it is making very frequent excursions for long distances at extremely low rates, such as \$2.50 from Albany to New York and return (290 miles

travel), etc. This, when tried elsewhere, has usually had a very demoralizing effect on passenger traffic, greatly reducing the travel by regular trains, but it has the effect of making a new road widely known to the people on its line. Whether this is worth what it costs is a question which admits of more than one answer. But it cannot fail to injure the New York Central, which in some cases has put on rival excursion trains, but seems to have given that up since, which seems sensible, as it has nothing to gain by it, being abundantly well known already.

But while the reports of a demoralization of through trunk-line rates has no substantial foundation, it is true that trunk-line business, at least on the New York roads, is very unsatisfactory. Cutting of rates is not necessary to make profits small now. The total amount of traffic is smaller than it was, and it is divided among a larger number of roads. The Lackawanna and the West Shore carry some through traffic in both directions, and in the aggregate a great deal; and they also carry a good deal of local traffic, and have probably caused a considerable reduction in many local rates. The Erie return for June shows how largely profits may be reduced under such circumstances, its having been reduced nearly one-half then, when the very low east-bound rate combined with the other causes to make profits small.

This effect, however, is not caused by cuts in through rates begun by the West Shore or any other road. There are troubles enough without that.

The July grain movement to the Northwestern markets began very light and ended fairly large. Their aggregate receipts in July for successive years have been:

1880.	1881.	1882.	1883.	1884.
32,637,155	29,687,142	23,527,295	18,922,576	17,118,890
1880.	1881.	1882.	1883.	1884.
50.7	62.8	45.8	59.0	40.0
Milwaukee.....	2.8	5.4	4.0	8.6
Toledo.....	14.8	8.0	11.8	6.9
Detroit.....	1.2	1.4	2.2	2.2
Cleveland.....	2.0	1.6	3.1	2.5
St. Louis.....	20.2	12.4	27.8	17.1
Peoria.....	6.3	8.0	4.6	6.7
Duluth.....	1.4	0.4	0.3	0.8
Total.....	100.0	100.0	100.0	100.0

Thus in 1881 and 1883, when the winter wheat crop was very light, St. Louis and Toledo together had about 20.4 and 24.0 per cent. of the receipts respectively; the other years 35, 39.6, and 29.3 per cent.

What is peculiar to this year is the large proportion of receipts at Milwaukee. These were mostly wheat, and doubtless spring wheat, which this year seems to have preferred Milwaukee to Chicago. Only in the last week, when Chicago began to get considerable winter wheat, were the receipts larger there, and in June Milwaukee received 1,189,176 bushels of wheat, against 483,767 at Chicago; in the four weeks to July 26 Milwaukee received 913,782 bushels, and Chicago 413,439.

The Atlantic receipts in July did not begin to increase until the last two weeks of the month, and for the four weeks to July 26 they were a sixth less than for the four weeks to June 28. For 11 years they have been:

Year.	Year.
1874.....	17,016,537
1875.....	13,003,649
1876.....	17,306,944
1877.....	11,081,019
1878.....	20,935,883
1879.....	28,550,851
1880.....	42,657,033
1881.....	32,305,566
1882.....	17,139,829
1883.....	15,071,298
1884.....	17,507,970

Thus the Atlantic receipts were 15 per cent. more this year than last and 2½ per cent. more than in 1882, but very much less than in any of the four years from 1878 to 1881 and only about as great as in 1874 and 1876. The heavy movement in 1879, 1880 and 1881 had very much to do in making good business and good railroad earnings, and it is encouraging to see that in the last week of last July there was something like a heavy movement to the seaboard again. There cannot now be such a movement as in 1880 and 1881, because the grain is lacking. Then we were marketing the surplus of enormous crops of corn. Now there cannot be a great deal of corn to ship until near the end of this year.

The most notable change from June in the receipts

of the different ports is the much larger proportion going to Baltimore (21.2 per cent., against 13.8) and Philadelphia, and the smaller share going to New York and Boston. The two latter received 66.4 per cent. of the whole in June and 56.3 in July, while Philadelphia and Baltimore received 20.4 per cent. in June and 30.8 in July. This change usually takes place when there is a good winter wheat crop.

The statistician of the Produce Exchange now includes Newport News in his table of Atlantic grain receiving ports. Its receipts have been given only for the two weeks ending Aug. 2, when they were 304,594 bushels and 3.1 per cent. of the total Atlantic receipts in that time. The receipts were all wheat, and as the Chesapeake & Ohio, which alone carries to Newport News, penetrates the southernmost wheat country, we should expect it to feel the movement of the new crop sooner than Baltimore even. But Baltimore has its largest wheat receipts about this time of year.

While the Newport News receipts reported so far cannot be called very large, they deserve reporting more than those of Portland, which for the last 15 weeks have not been as large as the Newport News receipts for two, and the latter are not much less than the average receipts of New Orleans have been this year. With a heavy corn crop in the Ohio Valley, a considerable export movement may be established at this port.

The 36 railroads that have reported for the whole month of July so far had the following aggregate mileage and earnings and average earnings per mile of road:

	1884.	1883.	Inc. or Dec.	P. c.
Miles	36,745	34,169	+	2,576 7.5
Earnings	\$16,712,119	\$16,851,339	-\$130,244	0.8
Earn. per mile	455	493	-	38 7.7

Thus in spite of the large increase in mileage there was a small decrease in earnings, and the earnings per mile fell off largely this year. One-half of the roads reporting had some increase in total earnings, and 13 had an increase in earnings per mile. The extreme Northwestern group (northwest of St. Paul), showed less improvement than usual, due chiefly to the smaller increase of the Northern Pacific. The Canadian Pacific has very small gain in earnings made with a very large increase of mileage. The Manitoba's loss is less than in most months. In the aggregate they had:

	1884.	1883.	Inc. or Dec.	P. c.
Miles	6,208	4,29	+	1,579 34.0
Earnings	\$2,365,332	\$2,208,913	+\$156,319	7.0
Earn. per mile	381	477	-	96 20.1

All of these roads had smaller earnings per mile than last year, the Northern Pacific's falling from \$500 to \$418. The result is similar to what it was in June, but the increase in total earnings is much less than in previous months of this year.

The railroads between Pennsylvania and the Mississippi, north of the Ohio, are reinforced by the Wabash in July, which reports a small increase in earnings without change in mileage. Other roads in this district that show gains are the West Michigan, Cincinnati, Indianapolis, St. Louis & Chicago, the Eastern Illinois, the Evansville & Terre Haute (a very large gain), the Ohio Central, and the Peoria, Decatur & Evansville. Several of these have profited by carrying the new winter wheat crop, which is much larger than last year's. But there is a large decrease on the Detroit, Lansing & Northern and the Flint & Pere Marquette. The returns are still quite incomplete and they come forward late, as is usual when they are unfavorable.

Erie Earnings and Expenses in June.

The New York, Lake Erie & Western statement of earnings and expenses for June shows a profit on the whole system worked (that is, after paying the rental of the New York, Pennsylvania & Ohio) amounting to \$312,755, which is \$302,967 (49 per cent.) less than in June of last year, but is \$18,000 more than in May of this year, and more than in any other month of this year except April. The profit has never been so small before in June since the reorganization, except in 1879, when west-bound rates from Chicago to New York were as low as 10 cents per 100 lbs. These June profits have been:

1878.	1879.	1880.	1881.	1882.	1883.	1884.
\$486,310	\$290,523	\$716,108	\$731,230	\$685,862	\$615,722	\$312,755

These profits were affected by the Ohio lease only in the last two years; in 1883 there was a profit of \$47,155 on this lease; this year a loss of \$47,874.

The gross and net earnings and working expenses in June of the Erie, exclusive of the leased Ohio road, have been, for seven years:

Year.	Gross earnings.	Net earnings.	Expenses.	Net earnings.
1878.	\$1,258,990	\$772,080	\$486,310	
1879.	1,230,419	839,896	290,523	
1880.	1,391,812	945,794	716,108	
1881.	1,794,982	1,063,752	731,230	
1882.	1,750,684	1,070,812	685,862	
1883.	1,663,038	1,095,020	568,018	
1884.	1,281,157	920,529	360,028	

Thus the gross earnings this year were no less than \$881,881 (23 per cent.) less than last year, the working ex-

penses \$174,491 (16 per cent.) less, and the net earnings \$207,390 (36 per cent.) less. The gross earnings were the smallest since 1879, the expenses the smallest since 1878, and the net earnings smaller than in any year except 1879. An unfavorable condition of the coal traffic combined with other circumstances to reduce the earnings and profits. The decrease in earnings of the leased New York, Pennsylvania & Ohio was larger in proportion than on the Erie even, being 27 per cent., and the decrease in the expenses of this line was comparatively small—only 3 per cent.—and they were 79 per cent. of the earnings, while the lessee receives only 68 per cent. of them. This is explainable by the fact that there was an unusually heavy east-bound through traffic last June, carried for 40 per cent. less than the rates of last year, and with the larger traffic a reduction of expenses was difficult.

For the nine months of the company's fiscal year ending with June, the gross and net earnings and working expenses of the Erie proper have been:

1884.	1883.	Decrease.	P. c.
Gross earnings.....\$12,893,624	\$14,766,377	\$1,812,733	12.3
Expenses.....9,262,465	10,204,854	942,389	9.2

Net earnings \$3,631,159 \$4,501,523 \$870,364 19.3

The reduction of expenses has been little more than half of the reduction of gross earnings, but both are large. Last year the leased Ohio road had produced a profit of \$101,891 during the two months till the end of June that it had existed; this year it has resulted in a loss of \$321,957. Thus the profit of the Erie Company in the two years has been:

1884.	1883.	Decrease.	P. c.
Profit.....\$3,309,202	\$4,003,414	\$1,994,122	27.3

Last year an extraordinarily large proportion of the profits were in the last two months of the year, and those of the nine months ending with June were but 62 per cent. of the profits of the year, 29 per cent. having been made in August and September. It is reasonable to expect that there will be an improvement in the last quarter this year, but nothing like the returns of last year can be expected.

The condition of the coal traffic will have much to do with it. Through rates are now substantially the same as last year. The east bound shipments may possibly be larger, but this road is not likely to get the exceptionally large share of them which it had in August and September of last year.

For the nine months ending with June the net earnings of the Erie proper have been:

Year.	Year.
1877-78.....\$3,073,207	1881-82.....\$4,601,053
1878-79.....3,339,015	1882-83.....4,01,523
1879-80.....5,137,210	1883-84.....3,631,159
1880-81.....5,683,920	

Thus the net earnings this year were nearly a fifth less than last year, and 36 per cent. less than in 1880-81. Deducting the loss on the leased line, the profit of \$3,209,202 for the nine months was smaller than in any other year since the reorganization, though nearly the same as in 1879.

Last year the net earnings were no larger in July than in June, but there is at least a possibility of an improvement this year, west-bound rates being higher, but the effect of the new crops can hardly be felt much by this road until August; it is the roads further south that profit most by the July movement.

June Earnings of the Chicago, Burlington & Quincy.

The Chicago, Burlington & Quincy reports for June an increase of about 7 per cent. in both gross and net earnings compared with last year, and larger earnings than in any other June except in 1881, when they were extraordinarily large, with a much smaller mileage than now. The miles, earnings and expenses for the last five years have been:

Year.	Miles.	Gross earnings.	Net earnings.	Expenses.	Net earnings.
1880.....2,597	\$1,782,556	\$834,283	\$848,731		
1881.....2,712	2,083,802	902,788	1,121,014		
1882.....3,108	1,437,664	921,541	516,133		
1883.....3,231	1,937,916	993,228	644,688		
1884.....3,60	2,077,182	1,064,441	1,012,041		

Compared with 1882, there is an increase of no less than 44 per cent. in gross and of no less than 96 per cent. in net earnings; but the month was exceptionally unfavorable in 1882, as may be known by the decrease then from 1881 which was greater than the increase in the two years since 1882. The increase in mileage has been 24 per cent. since 1881, but only 4 per cent. since last year—less than the increase in net earnings. Its gains and losses in June compare with those of other Chicago roads as follows:

Inc. or Dec. in earnings.	Inc. in mileage.	Gross	Net
Amount.	Amount.	Amount.	Amount.
Chic., Burl. & Quincy.....+\$139,266	40	129	40
Chicago & Alton.....-3,545	0.5	0	0
Chic. & N. W. -270,190	12.2	270	7.5
Chic., Mil. & St. P. -104,180	5.1	240	5.3

All the other roads had a decrease in earnings, and the two great systems next north of the Burlington had a large decrease in earnings in spite of a much larger increase in mileage than the Burlington's. Iowa roads north of the Burlington also reported reduced earnings last June. There have been no reports for lines south of it until we go south of the Missouri River, where the Missouri Pacific and the Missouri, Kansas & Texas each gained 8% per cent., and the St. Louis & San Francisco 20 per cent. per mile. This fact, and the smallness of the decrease on the Chicago & Alton, leads to the conclusion that it is the traffic west of the Missouri and south of the Platte that has given the Burlington the advantage over the lines north of it this year. The other lines mentioned south of it carry from Kansas, and the two with large gains have lines in Kansas; the Burlington also is one of the chief carriers of Kansas freight, and has a great system of roads in Nebraska south of the Platte, where the crops have been magnificent for two years, and are again this year. Even in Iowa, the corn crop, though bad on the Burlington, was much worse further north. There are

therefore natural causes to account for the different course of earnings on the different roads, which is sometimes attributed to the greater success of the Burlington in competing for traffic with the Union Pacific. It may have carried much more of the Colorado, Utah and trans-continental traffic than usual, but the rates have been such that it is hardly probable that it has earned more from that traffic than last year, when all its connections were completed.

The passenger earnings increased 4% per cent. and the freight earnings 7% per cent. in June.

For the half-year ending with June the earnings and expenses of the Chicago, Burlington & Quincy have been:

	1884.	1883.	Inc. or Dec.	P. c.
Passenger.....\$2,455,114	\$2,297,395	+\$157,719	6.9	
Freight.....8,465,766	8,561,858	-95,892	1.1	
Mails, etc.....694,942	545,950	+\$148,992	27.4	
Total.....\$11,616,022	\$11,405,203	+\$210,819	1.9	
Expenses.....6,457,02	6,023,656	+\$433,395	7.2	
Net earn.....\$5,158,970	\$5,381,547	-\$222,577	4.1	

This is not so favorable as the showing for June alone. There has been a decrease of 1% per cent. in the freight earnings, but the passenger earnings have increased more than in proportion to mileage, and there has been a very large increase in the earnings from mails, express, etc. which is probably partly due to its securing the trans-Missouri mails by its special fast Chicago-Omaha train. The expenses, however, increased more than the total gross earnings, leaving a decrease of 4 per cent. in net earnings. The amount of this decrease was reduced about one fourth in the month of June. There were increases in the gross earnings of this road in four of the six months, but in the net earnings only in February and June, the gains and losses in the several months having been:

Jan.	Feb.	March.	April.	May.	June.
\$171,882	\$235,442	\$282,748	\$2,315	\$59,127	\$68,053

There is likely to be a considerable movement of corn in June from Kansas and Nebraska, after the crops are put in and before the harvest begins, but July keeps the farmers in the fields, though from Kansas there may be considerable shipments of new wheat before the end of the month. But in August the wheat and oats of Nebraska and Iowa as well as of Kansas should be coming forward freely, besides what corn there may be to spare, which is doubtless less this year than in most years. The crops so far harvested on the lines of this road are good, as, however, the small grains were last year except in a small section which grows winter wheat; and the area in Nebraska at least is largely increased. The corn crop, which now promises magnificently, will not affect traffic directly until near the end of the year; thus the course of traffic on this road, so far as affected by crops, we should expect to be similar to what it was last year, until made larger by shipments of corn-fattened hogs in the last two or three months and of corn in the last month of the year. Now the gross earnings in successive months of the last half of last year were:

July.	Aug.	Sept.	Oct.	Nov.	Dec.
\$1,824,705	\$2,415,124	\$2,9,9,165	\$2,742,480	\$2,531,774	\$2,170,918

The earnings were 6 per cent. less in July than in June, but in all the following months they were very much greater, in August being no less than 37 per cent. greater than in July. The more unsatisfactory condition of general business, and the low prices of grain, may prevent a corresponding growth this year, but so far as the crops are concerned, they promise better than then.

The New Crop Movement.

The grain movement has now become quite large, and almost entirely because of the movement of new wheat

than at Baltimore even, this not being usually the season of its largest receipts, which are likely to come later, when the Spring wheat is coming forward. But in this week, to Aug. 2, the New York wheat receipts have been:

1880.	1881.	1882.	1883.	1884.
2,319,894	1,650,968	1,732,530	398,112	1,824,225
The total wheat receipts of the seven Atlantic ports for this week have been for seven years:	Year.	Year.	Year.	Year.
1878.....	3,301,884	1882.....	5,114,681	
1879.....	6,041,904	1883.....	1,798,708	
1880.....	5,536,438	1884.....	4,157,219	
1881.....	2,587,801			

This year compares very favorably with last year, 1881 and 1878, but not with the other three years. But the receipts in this week to Aug. 2 this year were considerably more than the receipts for the whole of June, and more than those of the three weeks to July 19.

In the Northwest the receipts of all places that receive much winter wheat have increased immensely. The receipts of wheat during the four weeks ending June 28, and for each of the five weeks following at four of the seven markets have been:

Chicago.	Milwaukee.	Toledo.	St. Louis.	8 markets.
4 weeks in June....	483,707	1,189,176	349,846	337,800
Week to July 5.	71,424	256,405	77,159	86,480
" 12.	96,803	263,820	65,864	280,891
" 19.	97,626	183,753	74,786	491,189
" 26.	147,493	204,804	325,155	480,771
Aug. 2.	287,077	67,152	682,193	704,896
				2,112,715

Chicago at last begins to feel the movement of the new crop, yet but slightly, receiving 13.6 per cent. of the whole in the last of these weeks, and about 163,000 bushels more than its weekly average in June; but this is an inconsiderable gain compared with that at St. Louis, which had nine times its June average—680,434 bushels more; and even this is not so remarkable as the gain in Toledo, made in two weeks, of 932 per cent. In the last week St. Louis received 36.2 per cent. and Toledo 32.3 per cent. of the total Northwestern wheat receipts. At Detroit and Cleveland there is a large percentage of increase.

It seems that the wheat receipts of the Northwestern markets exceed their shipments now. The latter were but 1,543,587 bushels in the week to Aug. 2, and it is especially noticeable that but 411,433 bushels of this were shipped by rail.

We may conclude from this that so far the movement of the new crop has profited most those railroads which cross the winter wheat states east of the Mississippi and south of the lakes and the trunk lines which they feed—probably all the trunk lines, because all (except the new ones) have connections which cross these states. Next it appears that there is a very considerable movement on the railroads which carry to St. Louis and Toledo, but not a large one to any lake port except Toledo. Finally, the movement of the new crop over the railroads from Northwestern markets eastward is very light.

The winter wheat crop is now all harvested and much of it threshed; it can not be called a good crop anywhere east of Kansas or Missouri, but is very much better than last year. The spring wheat of Nebraska and of most of Iowa is probably harvested, and harvesting is progressing in Northern Minnesota and Dakota. No damage is reported so far, and by the last report it promised remarkably well. Spring wheat, however, was an exceptionally good crop in Nebraska and Iowa last year and probably an average one in Minnesota and Dakota. In the last two states there is promise of a larger average yield, however, and in all of them a large increase in acreage is reported. In Wisconsin alone, of the spring wheat states, a decrease reported. In the aggregate the estimate of the Department of Agriculture made the total in the five states 9,408,000 acres last year and 10,302,000 this, an increase of 894,000 acres, or 9.4 per cent. This is an extraordinarily large increase, but if the average yield per acre should even be 15 per cent. more than last year in Minnesota and Dakota—which would be an extraordinary yield—the additional acreage in these states will produce but about 13,000,000 bushels, which is less than the increase in Illinois alone from the wretched crop of last year to the poor one of this. Besides this increase from additional area, this estimate would give an increase of 7,500,000 by larger average yield in Minnesota and Dakota, making the total yield of these states 145 millions this year, against 124½ last.

Of the total increase of 20½ millions, nearly seven-eighths (17½ million) would be in Minnesota and Dakota. But this is on the supposition that the average yield there will be 15 per cent. more than last year, which is hardly to be expected, as the yield was good last year. It is well to bear this in mind, in order to know what railroads may be expected to profit most from the large crop.

There was a drought which extended over a large territory around Cincinnati, apparently as large as half of Ohio, in Southern Ohio and Southeastern Indiana and Kentucky. It came too late to injure the winter wheat, but is said to have very greatly damaged corn and tobacco. This drought was reported as much as two weeks ago, but failed to attract the attention it deserved. It is apparently the only great loss by unfavorable weather that has occurred over any considerable district in the North.

Corn, on the whole, promises exceedingly well in some parts, especially in Iowa, as well as in the best of previous years. The weather recently has not been favorable. Rains have been excessive, and a great many stalks have blown down. With the start it has, corn will stand a good deal of this, however. Latterly, the weather has been too cool for corn, but this is of much less importance with the corn as forward as it now is, than last year, when it was

very backward. It is probable now that the yield will be large, and it may be as large as in 1879 even, but the area planted is such that a fairly good yield will make more corn than was ever before grown in the country.

Cotton has had a season of vicissitudes. The crop was doing finely this side of the Mississippi early in July, since which time rains have been excessive, and the condition is not now so promising, though apparently not bad. West of the Mississippi rains greatly delayed planting and prevented cultivation, after which, in Texas, came a severe drought, which has left the crop in a precarious condition, though timely rains apparently may save it, and there have been some. The prospect still seems to be for a better crop than last year, but a great deal depends on the weather for the next six weeks.

The eastward shipments, through and local, of flour, grain and provisions from Chicago for the week ending Aug. 9, by the incomplete report to the Board of Trade, were 22,960 tons, against 26,808 in the corresponding week of last year, and 18,611 in 1882. The shipments were decidedly smaller than in previous weeks of this year, as will appear from the following statement of the number of tons shipped in each of the last six weeks, and the percentage of the total going by each railroad:

Tons:	Week ending					
	July 5.	July 12.	July 19.	July 26.	Aug. 2.	Aug. 9.
Flour.....	6,163	3,429	3,809	3,527	3,419	3,313
Grain.....	25,829	15,480	18,461	20,767	14,492	13,034
Provisions.....	7,781	6,625	6,826	7,005	6,512	6,043
Total.....	39,973	25,534	30,896	31,558	24,423	22,960

Per cent.:

C. & Grand T.	16.3	13.5	12.9	15.2	17.2	17.9
Min. Cen.	9.6	8.3	11.8	10.0	9.1	11.0
Lake Shore....	12.3	19.7	19.3	18.2	17.8	18.2
Nickel Plate....	9.1	10.9	9.8	14.0	9.5	9.8
Ft. Wayne.....	16.7	18.2	21.4	17.9	18.1	17.1
C. St. L. & P.	11.5	7.9	5.6	5.5	7.2	6.7
Balt. & Ohio....	10.2	10.5	8.4	9.0	11.0	10.3
Ch. & Atlantic....	14.3	11.0	10.8	10.2	10.1	9.5
Total.....	100.0	100.0	100.0	100.0	100.0	100.0

Nearly the whole decrease from the previous week was in grain, and grain has suffered the chief decrease since the time of the 15 cent rate. Practically the last week of that rate was the one ending June 28, and a comparison of the shipments of last week with that week shows the following changes:

	Week to			P. c.
	Aug. 9.	June 28.	Decrease.	
Flour.....	3,513	5,874	2,361	43.6
Grain.....	13,004	41,901	28,897	69.0
Provisions.....	6,643	11,589	4,946	42.6
Total.....	22,960	59,364	36,404	61.2

As the week to June 28 was known to be the last of the 15 cent rate, shipments were greatly stimulated, and they were larger than in any other week after April, and the provision shipments especially were exceptionally large. But for the six weeks ending June 28 the average weekly shipments were 54,014 tons, which is 137 per cent. more than last week; and the shipments then were made up of 6,146 tons of flour, 38,861 of grain, and 9,007 provisions, and the percentages of decrease last week from these averages were 46 per cent. in flour, 66 per cent. in grain, and 26 per cent. in provisions, indicating a diversion of grain shipments from rail to lake, as usual when rail rates are raised. In this case the advance in rail rates was not followed by an advance in lake rates, which have remained nearly as low as they ever were, shipments from Chicago and Milwaukee not having been affected as yet by the marketing of the new wheat; and while shipments from the whole West have been increasing (only a small part going through Chicago), corn shipments, which are always chiefly from Chicago, have been decreasing. The lake vessels are abundantly able to carry much more than has been offered yet, and so long as their rates are so low, they are likely to get the bulk of what is shipped via Chicago for export, as wheat largely is, the railroads carrying chiefly for places that cannot be reached by canal.

As to the percentages of shipments going by the different routes, the Chicago & Grand Trunk last week carried even a larger share than the week before and more than any other road except the Lake Shore. It carried more flour and provisions than any other road, 20 per cent. of the flour and 32 per cent. of the provisions, but only 10 per cent. of the grain. The Pennsylvania roads have usually carried the larger share of the provisions, but last week the two together carried less than the Chicago & Grand Trunk. The Lake Shore keeps up its proportion well, but its freight is chiefly grain, 22.3 per cent. of which it carried, but only 16.7 per cent. of the flour and 10.7 per cent. of the provisions. The Michigan Central, until quite recently the chief carrier of freight from Chicago, remains near the foot of the list, as it has been for months. The whole business was so small last week, however, that the road with the largest proportion of it had not much to carry. For instance, the 7.2 per cent. of the Baltimore & Ohio during the week to June 28 was 4,314 tons, while the 18.2 per cent. of the Lake Shore last week was only 4,162 tons.

The tonnage shipped on the New York state canals for the first three months of the season has been:

	1884.	1883.	Inc. or Dec. P. c.
May.....	650,991	603,501	+ 47,490 7.9
June.....	631,665	833,342	- 182,677 21.9
July.....	701,797	732,630	+ 29,167 4.0

Three months..... 2,063,853 2,169,473 - 105,620 4.9

The large decrease in June was largely due to the diversion of grain from the canal to the railroads, due to lower rail rates; as we have shown heretofore, the total receipts of grain and flour at New York city in June was nearly the same this year as last, but only 84½ per cent. of it arrived

by canal this year, against 57 per cent. last year, the figures being:

	1884.	1883.	Inc. or Dec.
By rail.....	6,846,667	4,370,664	+ 2,476,403
By canal.....	3,470,335	6,231,910	- 2,765,575
Total.....	10,431,908	10,945,621	- 513,623

The advance in the rail rates since June has favored shipments by canal, on which rates have not been changed to an appreciable extent. But the canal freights are affected by other than the grain business. Coal, iron ore and especially lumber form important parts of canal freight.

A comparison with shipments in 1882, which was the last year that were imposed, is as follows:

	1884.	1882.	Inc. or Dec.
May.....	650,991	712,685	- 61,694
June.....	651,065	763,432	- 52,367
July.....	701,797	700,711	+ 61,086

Three months..... 2,063,853 2,116,828 - 52,975

The change is much like what was shown between this year and last, a decrease in the months when the railroads were charging 15 cents per 100 from Chicago to New York, and an increase in the months when they were charging 20 and 25 cents. The difference in the rail rates has probably had more to do with the changes in canal shipments than anything else. A reduction of about 13½ cents per 100 lbs. in the rail rate from Chicago to New York equals the canal toll that has been abolished.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Meriden & Cromwell.—Track laid from Cromwell, Conn., west 8 miles.

Western North Carolina.—Track on the *Ducktown Branch* is extended from the *Tuckasegee River* to *Charleston, N. C.*, 18 miles.

Wisconsin Central.—Track is laid on this company's *Minnesota, St. Croix & Wisconsin* line from *Chippewa Falls, Wis.*, west 20 miles.

This is a total of 46 miles of new railroad, making 1,905 miles reported to date for the current year. The total track reported laid to the corresponding date for 13 years past is as follows:

	Miles.	Miles.
1884.....	1,905	1877.....
1883.....	2,942	1876.....
1882.....	5,782	1875.....
1881.....	3,180	1874.....
1880.....	2,704	1873.....
1879.....	1,346	1872.....
1878.....	1,005	

These statements include *main track only*, no account being taken of second tracks or other additional tracks or sidings.

Bonding Persons who Handle Money.

any rude or imperfect thing; while possessing undoubted beauty and strength, it may be compared to an uncultivated voice that breaks whenever too severely tried. In order, however, to cover these lapses in honest practice that it is possible to locate and fix upon the books in dollars and cents, the custom has grown up of exacting a bond where men handle money or have corresponding interests intrusted to them. Where private bonds are given the conjunction of interests between the surety and the employer is, without doubt, highly beneficial to the latter. The responsibility of the surety in the event of loss leads him, if he is a practical man, to observe carefully the person he guarantees, so that if the latter falls into dissolute habits the fact is more likely to be observed than it would otherwise be. Moreover, it is sometimes assumed, whether truthfully or not, that men are less likely to jeopardize the interests of private bondsmen than those of a corporate employer, for the reason that the former is very probably their friend; anyway, he has a personality, while the corporation has not. In any event, the surety is their benefactor, and is entitled to their confidence and gratitude. And herein, curiously enough, lies one objection to the accepting of private bonds by common carriers and governments. It is often found that the sureties in such cases presume upon the obligations of the persons bonded to take unfair advantage of the employer through them by exacting favors and asking concessions not extended to others, and not proper to grant in any event. This fact makes it (or should make it) necessary, where private bondsmen are accepted, to see that they are not of a character likely to require favors of the persons bonded. The public guarantee companies undoubtedly afford employers a more satisfactory form of surety, everything considered, than private parties. They have no favors to ask of those they insure; their investigations are impartial, and in many respects admirable; they are easily accessible; it is not difficult or expensive to ascertain in regard to their responsibility, and they are quickly amenable in the event loss should occur through those they insure. The facilities possessed by them for inquiries into the acts of those they guarantee is undoubtedly, as a rule, less ample than those possessed by private sureties. The expense of making minute inquiries from day to day would be so great that it would absorb all the profit in the business. Hence the employer is deprived of this constant and valuable supervision. But as any ascertainable loss is promptly recognized and paid, the supervision is not so important to him. The careful inquiries made by the indemnity companies and guarantee associations into the character and antecedents of persons guaranteed by them afford information of a valuable nature not possible under other systems, though when carried to its greatest length, it is still not as comprehensive or valuable as the information possessed by private bondsmen. The employer, however, is saved the annoyance and expense of looking up the character of innumerable sureties, and the inquiries he must institute periodically in regard to their character and financial standing. The most simple and direct form of security that is possible is the depositing of securities with the employer sufficient to cover the amount of the bond that would otherwise be required. This is the primitive method. Under it both parties in interest are relieved of any expense or obligation, and if the understanding under which the securities are deposited is simply and legally drawn, the conditions are perfect—provided the employer is able to satisfy the employé of the safety of the securities thus deposited. The details connected with the giving of bonds, no matter what method may be followed, is exceedingly intricate and laborious, and require to be observed with unceasing and intelligent attention, if the object sought for (viz., the securing of the employer against loss for the amount of the bond) is to be secured beyond peradventure. These details are stated in the succeeding pages of this chapter with considerable particularity, but not to a greater extent, it is believed, than the importance of the subject warrants.

AMOUNT OF BONDS.

It is a common mistake in fixing the amount of a bond to make it too small. It arises from a disposition to err on the side of leniency, if at all. This benevolence, while laudable in all the ordinary affairs of life, is for obvious reasons utterly out of place when applied to the fixing of bonds to protect corporate bodies against unfaithful employés. Bonds for less than \$500 are of very little account. Deficiencies of less than that sum can, as a rule, be made good by or through the delinquent, if proper skill is exercised by the collector. It is where the shortage exceeds that sum that it becomes difficult, if not impossible, for the delinquent or his friends to make the amount good. Bonds under \$500 should not therefore be accepted, and bonds for less than \$1,000 ought not to be encouraged. The bond should be sufficient to cover the maximum sum that it is possible, under the most favorable circumstances, for the person giving it to purloin before being detected. This should be the rule, and it is ordinarily perfectly feasible and proper. However, instances will arise where the collections are so large as to render it impossible to enforce a rule of this kind without great hardship. Where this is the case protection must be sought in a measure in a division of responsibility. Thus the custody and care of the money (if it is a question of money) must not be left wholly with one person, but must be so divided as to prevent irregular practices except by collusion between two or more parties. The bond in such cases is an auxiliary guarantee merely, and should be sufficient in amount to cover any sum likely to be taken to meet personal wants or to cover unfortunate ventures that the giver may be inveigled into. Ten thousand dollars is perhaps as large a bond as any employé

can (of his own volition) reasonably be asked to execute, and if proper safeguards are instituted, and the responsibilities attending the care of the money divided, this sum will, in the great majority of cases, be found to be sufficient to cover every contingency of business. Private bonds, however, should always be for larger amounts than those required from guarantee companies and associations. This is necessary for the reason that they are more difficult to collect, and if the amount of the bond is fixed high enough, it will exclude worthless bondsmen, as all such would be unable to qualify under its provisions. A private bond for less than \$2,000 should not be accepted unless the sureties attached are men of unusual high character and wealth. The facility with which bonds may be collected of guarantee companies and associations renders it practicable and safe to restrict the amount in such cases to the minimum sum required. There are, or should be, no expenses attending the collection of such bonds, and thus the contingencies in this respect that must be considered in connection with private sureties are happily absent; and herein lies an additional reason (if one were wanting) why the indemnity companies and associations, if possessed of sufficient capital and properly managed, should be given the preference over private bondsmen.

WHO SHOULD FURNISH THE SECURITY.

All persons who handle cash, or have charge of supplies, or fill positions of financial trust, should be required to provide security for the faithful discharge of the duties performed by them. Many employés, by long and honorable service, establish a character for honesty and capacity that renders it exceedingly disagreeable to ask guarantees of this kind from them; but in corporations where changes are matters of common occurrence, distinctions cannot with propriety be made between the character of agents, where all are presumably capable and reputable men. Hence it is necessary to exact bonds from all, without reference to the peculiar features of individual cases.

KIND OF SECURITY.

The various forms of acceptable security may be recapitulated as follows, viz.:

Collateral security, to be deposited with the employer.

The bonds of public guarantee companies.

The employés mutually guaranteeing each other by the creation of a fund contributed by them and deposited with the employer.

Private bondsmen.

Whichever form of security is adopted, it should be effected on or before the installation of the employé. No person who has not given the requisite security should be permitted to handle the funds of the company.

In the case of railway agents and persons filling kindred positions, it will sometimes be found after their appointment that they are unable to furnish the security required. When this is the case some one should be designated without delay to relieve them. It is desirable on this and other accounts that operators should be advised before being appointed of the nature and amount of the security that will be required from them for the faithful performance of their duties. This gives them an opportunity to decline in the event they are unwilling or unable to furnish it, or in the event they accept, that they may be prepared to meet the necessary requirements of their position upon being installed. It is, moreover, much easier and more satisfactory to all parties to fix the question of security before the appointment.

Collateral Securities.—Where employés desire it, they should be allowed to deposit approved securities equal in cash value to the amount of the bond that they would otherwise be required to furnish. These securities should be negotiable stocks or bonds having a stable market value, and must be payable to broker, or if registered must be registered in the name of the employer, to be used as may be necessary in the event the person depositing them should prove delinquent. Generally speaking, such securities should come under one of the following heads: Government bonds, railway mortgage bonds, railway shares, state or municipal bonds. Securities deposited for this purpose should be kept for the benefit of the person depositing them, and can only be delivered to such person or upon his order after the expiration of one year from the time of his leaving the service or ceasing to fill the position for which security was deposited, unless sooner exchanged, as may be agreed upon.

Insurance in Public Guarantee Companies.—Where satisfactory public guarantee companies stand ready to indemnify employers for the acts of their agents, the latter should be allowed to select such method of surety in preference to any other when they desire. Where this method of security is provided, the usual form of application must be made by the employé, and a bond of the guarantee company duly signed by him. These papers, with the amount necessary to cover the premium, should be remitted to the proper officer, to be turned over to the guarantee company. The premium must be in cash, except where the applicant relieves a person already insured by the guarantee company, in which event the premium should be paid to such person and a receipt taken, which receipt should be transmitted in lieu of money. The just and proper importance attached by guarantee companies and associations to the applications of persons desiring indemnity renders it necessary that the utmost care and intelligence should be exercised in filling up these forms. The object of these returns is to afford a minute and comprehensive history of the applicant's life since leaving school, and if the form is filled out in good faith as provided, this object is attained; otherwise not.

Security offered by Mutual Guarantee Associations.—In

those cases where employés are allowed to guarantee the integrity of each other by combining the amount of their annual guarantee premiums, such security should of course be taken in preference to any other, and all employés who are expected to furnish security and who are eligible (i. e., are acceptable) should be required to subscribe to the fund in preference to furnishing any other form of security. The application to be made by them in such cases, with the other forms required to be filled up, should be substantially the same as those used by the guarantee companies.

No clerk or telegraph operator employed at a station should be allowed to sell tickets or handle cash unless he is known to be a trustworthy man, and it is the duty of agents, and their privilege, to investigate the character of all subordinates, whether such subordinates are sent to them or they are hired directly by the agents themselves. Agents must satisfy themselves that their assistants are reputable men, and in the event they do not believe them to be so, or pending investigation into their character and antecedents, must not permit them to sell tickets or handle cash. If it should be found upon investigation that an untrustworthy employé has crept into the service, he should be reported for retirement without delay, and pending such retirement must not be permitted to touch the cash of the company. The agent cannot be relieved of responsibility for the affairs of the company at his station, and he must take measures to protect himself against untrustworthy subordinates.

The statements in regard to the character and antecedents of applicants for indemnity should be carefully examined at the time they are made. If there is anything unfavorable or ambiguous in connection with them, the matter should be thoroughly investigated and a report thereof should accompany the exhibit. At the same time diligent inquiry should also be made in regard to the character of the references named by the employé. The company is necessarily influenced in making its estimate of an employé's fitness and character by what is said of him by those to whom he refers. It is, therefore, of the greatest importance that these referees should be men of character and standing; in any event the employer should know whether they are so or not.

Accompanying the application for guarantee, the amount of the premium for the current year should be remitted. All premiums expire at a given time uniform over the whole property. If the applicant has relieved a person already guaranteed, he should pay such person the amount of unearned premium due him for the balance of the current year, and remit the receipt received in return therefor in lieu of money, as in the case of the guarantee companies. Under the operation of the guarantee system of insurance the rate of premium to be paid by an incoming employé may be greater in amount than the unearned premium due the one retiring. In such cases, the difference (with the receipt already described) should be remitted in cash. Orders on the paymaster for amount of premium, payable out of current month's salary, may be accepted in lieu of cash whenever it is inconvenient for the employé to furnish the latter.

In the event there is any reason to distrust the integrity of an applicant for guarantee, or if the application filed by him is not entirely satisfactory, a private bond must be exacted, with two responsible sureties, as hereinbefore provided. This private bond will be kept by the company permanently, or until such time as it is satisfied in regard to the character and fitness of the employé. This precaution need not, however, be taken where the employé furnishes collateral security.

Private Bonds.—Whenever private bonds are accepted, they must be signed by the principal and by two good and responsible sureties. The signatures to the bond need not be witnessed. The sureties must be men. The justification form on the back of the blank (reciting the value of the realty owned by sureties free from encumbrance, etc.) must be filled up and sworn to before a notary public, justice of the peace, or other authorized officer. Each surety (bondsmen) must swear that he is worth twice the amount of the bond in real estate free from encumbrance over and above the amount exempt by law from execution. No exceptions can be made to this rule. The sureties should not be men engaged in any kind of business that will be likely to cause them to require any favor from the employé. No officer or employé of the company will be accepted as surety. No inducement must be offered sureties to go on the bond of an employé. The officials of the company should neither solicit nor advise nor suggest such thing. To prevent error the date and amount should be inserted in the bond when the blank is delivered up to be executed. The first name of the sureties must be given in full, also the name of each of the parties of the instrument must be duly entered before signing, in proper order, in the blank places provided therefor. Particular care should be taken to see that the technical requirements of the blank are complied with in every respect. Otherwise it will be necessary to reject the bond. Every effort must be made by employés to detect and expose any attempt to impose worthless or insufficient sureties on the company. The utmost diligence must be exercised to ascertain that the bondsmen are not only worth the amounts which they profess, but that they are honorable, upright men, who in the event of loss will pay without seeking to evade the plain stipulations and intent of the bond. Whenever a station is visited inquiry should be made in reference to any bondsmen who may reside at such station or in its vicinity, the result of such inquiry being reported to the proper officer for approval and record. To facilitate these inquiries a list should be kept of the sureties on bonds held by the company, arranged alphabetically according to stations, so that when a particular station is visited a complete list of all the bondsmen who reside at or near such place may easily be obtained. In case

of failure, embarrassment, removal or decease of any bondsman, a new bond should be filed.

When employés of the company execute new bonds, the accounts must be examined at the time, so that in the event of subsequent loss the company may be able to prove that the loss legitimately falls upon the last sureties. Private bonds entail much more labor and expense upon the company than any other form of security, besides being in other respects less desirable. They should, therefore, as a rule, only be taken where the other forms of security described herein cannot be obtained, or as additional thereto.

It will be seen from the foregoing that great reliance is placed upon the investigations in regard to the character of both the employé and his bondsmen or referees. Moreover those intrusted with the examination of agents' accounts are held to a rigid accountability for the vigilance, skill and intelligence exercised by them. In the event of a defalcation they are expected to collect the amount before leaving the station at which it occurs.

RENEWAL OF BONDS.

As a rule, all private bonds should be renewed once in four years, unless the company is satisfied that the security is still perfectly good. The company cannot agree, however, to release such bondsmen at the end of every four years, or at any other fixed period. The financial standing of all private bondsmen must be carefully investigated, and in times of depression in trade increased vigilance in this respect is necessary. Private sureties must not be allowed to withdraw from a bond until the accounts of the person bonded are found to be correct and settled in full up to the time that the release is demanded. On no account should bonds be surrendered until at least one year after the natural termination of the bond. Claims for overcharges, losses, etc., are often not presented until several months after the liability is incurred, hence the impossibility of relieving bondsmen at an earlier date.

REGISTER OF BONDS TO BE KEPT.

A register of all accepted bonds should be kept by the proper officer, and such register should show all the particulars of the bonds. This register should be examined at frequent intervals, and if for any reason the amount of any bond is found to be insufficient to cover the risk, steps must be taken to have a new or additional bond executed.

MISCELLANEOUS INSTRUCTIONS IN REGARD TO GUARANTEE FORMS OF SECURITY.

Where security is taken in the form of a cash guarantee, it is desirable that the insurance or guarantee should expire on some particular day of each year. Tables should be prepared explaining the amount of security required of employés in particular cases, and the rates of premium per year, so that the application of an employé can be perfected at any time or place. In computing premiums the amount should be computed from the day the employé is installed. When transferring security from a retiring to an incoming employé the amount of the premium to be refunded the former by the latter should be computed from the day of the transfer. In all cases of transfer the incoming employé should pay to the one retiring the amount of unearned premium due the latter and should take a receipt therefor, which receipt, with the application of the incoming employé, should be forwarded to the proper officer without delay, as already explained.

Employés who furnish guarantee security should also be required to sign an agreement or give a personal bond (as may be thought best), but without sureties, for the honest discharge of their duties, and particularly to cover the purpose of the following paragraph, which should be embodied in every such agreement or bond: "And it is also agreed that in case the subscriber hereto should leave the service of the said company or be discharged therefrom, the company shall have the right to withhold any sum which may be due to him until a reasonable time for the examination of his accounts has elapsed, and in any case until the regular pay day of the company." The object of this clause is to prevent suit being brought against the company for wages due to discharged men before sufficient time has elapsed in which to examine and audit their accounts. Every company probably has had more or less difficulty of this kind from men who have left its service, and as it is difficult as well as expensive to be compelled to explain to the courts the reason why the wages of men should be withheld, and the *modus operandi* that must be observed in auditing accounts and the time required therefor, it is better in all cases that employés should formally waive in advance (as they do by this clause) any wages that may be due them when they leave the service of the company, until their accounts have been proven to be correct.

Dee's Traction Inclinator.

The results of a carefully conducted trial of a device of this class will doubtless be interesting to many of our readers. We therefore give below full details of trials made on the Pittsburgh, Cincinnati & St. Louis Railway by Mr. E. B. Wall, Superintendent of Motive Power. The device has been used in daily service on the line for some months, and the conclusions arrived at as to the practical value of the traction inclinator are not based on its experimental use alone.

This principle of the device is easily understood. A rigid bar or frame is firmly connected with the front end of the sill of the tender, and projects beyond it underneath the engine foot-plate. Two vertical steam cylinders on the hind end of the engine are connected to a transverse beam, which when the traction inclinator is not in use is beneath and free of the projecting bar of the tender. When it is desired to increase the weight on the drivers, steam is admitted to the cylinders, and the transverse beam is drawn up against the

projecting tender of frame. The front truck of the tender is thus partly relieved of its load, which is transferred to the engine drivers. It will be noticed that the weights do not agree owing to the usual inaccurate mode of weighing engines customary in this country.

A trial of the Dee's Traction Inclinator was made on Pittsburgh, Cincinnati & St. Louis engine No. 105, on Friday, March 7, 1884, at Black Lick station, on Pittsburgh, Cincinnati & St. Louis Division. Grade 49.1 feet to the mile. Track on a tangent, dry and in first-class condition. Temperature 31.5. Engine in good order, the steam pressure being 125 lbs. throughout the trial.

Trial	No. of cars...	Lbs. of coal	Lbs. of water in tender...	Total weight of train...	Traction inclinator...	Sand.	Remarks.
1.	22	8,500	14,040	1,128,300	Not used.	Not used.	Engine stalled.
2.	21	.....	.....	1,084,300	Not used.	Not used.	Engine stalled.
3.	20	.....	.....	1,040,300	Not used.	Not used.	Engine hauled train over grade.
4.	22	7,500	7,800	1,121,000	Used.	Not used.	Engine hauled train over grade.
5.	23	.....	.....	1,165,060	Used.	Not used.	Engine stalled.
6.	22	.....	.....	1,121,060	Not used.	Used.	Owing to improper use of sand, engine stalled.

The cabin car is not included in the "number of cars," but its weight together with that of the engine and tender is included in "total weight of train."

Weight of Engine No. 105, Pittsburgh, Cincinnati & St. Louis Railway—With and Without the "Dee's Traction Inclinator."

Weights of engine, device not applied.			
Front truck alone	21,400	Weight on front truck	21,400
Truck and front driver	41,300	" " " driver	19,900
Truck, front and main driver	62,350	" " main " "	21,050
Truck, front, main and back driver	81,200	" " rear "	18,850
			81,200
Weight of tender:			
Total	51,100		
Weight on rear truck	26,200		

Device applied.			
Weight on truck	15,000	Weight taken off	
" front driver	23,500		3,600
" main "	28,10		7,050
" rear "	25,650		6,800
	92,850		
Weight of tender:			
Total	39,600	11,500	
Weight on rear truck	32,500		6,300
Weight taken off tender, front end	11,500		
Weight taken off front trucks of engine	5,800		
Weight added to engine, front driver	3,600		
Weight added to engine, main driver	7,050		
Weight added to engine, rear driver	6,800		
Weight added to rear end of tender	17,450		
	6,300		

The conclusions reached were that the device would save the use of sand, except when the track was wet; and also save the wear of rails and tires incident to the use of sand. It has a further advantage over sand in not retarding all the wheels under the train which follow the driving wheels. By the adoption of the device, an engine would not be able to haul any more cars than it does at the present time when sand is used. There was no evidence of the device exerting any detrimental effects on the driving springs.

It has been ascertained that the engine uses about 50 per cent. less sand than other engines of the same class doing the same service on the same roads. It had been in service about six months when this account was given, and the tires did not show as much wear as is usual.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

Boston, *Housac Tunnel & Western*, annual meeting, at the office in New York, Aug. 20.

Northern Pacific, annual meeting, at the office in New York, Sept. 18.

Poughkeepsie & Southwestern, annual meeting, at No. 97 Nassau street, New York, Aug. 20, at noon.

St. Paul, Minneapolis & Manitoba, annual meeting, in St. Paul, Minn., Aug. 20.

Dividends.

Dividends have been declared as follows:

Central of New Jersey (leased to *Philadelphia & Reading*), 1 $\frac{1}{2}$ per cent., quarterly, payable Sept. 1. Transfer books close Aug. 15.

Middletown & Crawford, 5 per cent., yearly, payable Aug. 20.

North Pennsylvania (leased to *Philadelphia & Reading*), 2 per cent., quarterly, payable Aug. 26, to stockholders of record on Aug. 18.

Railroad and Technical Conventions.

Meetings and conventions of railroad associations and technical societies will be held as follows:

Train Dispatchers' Association, preliminary meeting, to form an association, in Louisville, Ky., on Wednesday, Aug. 20.

Master Car-Painters' Association, annual convention, in

Boston, on Wednesday, Sept. 3. A full programme was given last week.

Road-Masters' Association of America, annual convention, in Indianapolis, Ind., on Wednesday, Sept. 10.

Association of American Railroad Superintendents, semi-annual meeting, in Boston, on Tuesday, Sept. 16.

National Association of General Passenger & Ticket Agents, semi-annual convention, in Boston, on Tuesday, Sept. 16.

New England Railroad Club, first monthly meeting for the season, at the rooms in the Boston & Albany station in Boston, on Wednesday, Sept. 24.

New England Road-Masters' Association, annual convention, at White River Junction, Vt., on Wednesday, Oct. 8.

General Time Convention, fall meeting, at the Continental Hotel, Philadelphia, on Thursday, Oct. 9.

Southern Time Convention, fall meeting, at No. 46 Bond street, New York, on Wednesday, Oct. 15.

American Street Railway Association, annual convention, in New York, on Wednesday, Oct. 15.

Foreclosure Sales.

The *Memphis, Selma & Brunswick* road was offered for sale in Holly Springs, Miss., Aug. 11, under a decree of the United States Circuit Court, but was not sold, there being no cash bidders. The road is completed from Holly Springs to Byhalia, 16 miles, and has also some two miles of the road in the city of Memphis. It has never been operated. It is said that the creditors will hold a meeting shortly for the purpose of making arrangements to buy in and complete the road, as no one else seems willing to buy it.

The adjourned sale of the *Cincinnati Northern* road is to take place Sept. 15 next, in Cincinnati.

New England Railroad Club.

The annual excursion of the New England Railroad Club will take place on Wednesday, Aug. 20. The steamer "Rose S'andish" will leave Rowe's Wharf at 10 a. m., and after making a trip about the harbor, will stop at Downer Landing, where dinner will be served and various amusements offered. After this stop, the party will re-embark and return on the steamer to Boston. A very pleasant trip is anticipated and a large number of members will probably be present.

ELECTIONS AND APPOINTMENTS.

Americus, Preston & Lumpkin.—Mr. H. L. Collier is Chief Engineer of this road, with headquarters at Americus, Ga.

Canadian Pacific.—On and after Aug. 1 tracers, junction, mileage and all reports or correspondence in connection with cars of the Credit Valley, or the Toronto, Grey & Bruce Railways (initialled C. V. or T. G. & B.), should be addressed to Mr. R. H. Smith, Car Accountant, Montreal.

Chattanooga & Lookout Mountain.—This company has been organized at Chattanooga, Tenn., by the election of the following directors: E. W. Cole, S. A. King, Hugh Whiteside, C. D. Clark, J. L. McCollum, T. D. Fite, T. A. Atchison, J. G. Houston, J. Hill Eakin. The board organized by electing Col. E. W. Cole, President; J. L. McCollum, Secretary and Treasurer.

Chicago, Burlington & Quincy.—Mr. C. W. Wagner has been appointed General Southwestern Freight Agent, with office in Kansas City, Mo., in place of Col. W. H. McDowell, who has gone to the Louisville, New Albany & Chicago.

Chicago, Rock Island & Pacific.—Mr. E. A. Holbrook has been appointed Assistant General Passenger Agent, with office in Chicago. He was recently General Eastern Agent of the Chicago & Northwestern and formerly General Passenger Agent of the Rochester & Pittsburgh road.

Delaware & Hudson Canal Co..—The board has elected Mr. R. M. Olyphant (for some time past Assistant President), President in place of Thomas Dickson, deceased.

Fort Wayne, Goshen, Elkhart & South Bend.—At the annual meeting in Fort Wayne, Ind., the following board of directors was elected: Charles McCulloch, A. C. Trentman, George W. Pixley, Henry M. Williams, Edwin Evans, Merrit Hamilton, Charles E. Bond. The board re-elected Edwin Evans President; Henry M. Williams, Vice-President; Chas. E. Bond, Secretary and Treasurer.

Fort Wayne, Peoria & Galesburg.—At the annual meeting in Fort Wayne, Ind., the following board of directors was elected: Chas. C. McCulloch, A. C. Trentman, George W. Pixley, Henry M. Williams, Edwin Evans, Merrit Hamilton, Charles E. Bond. The board re-elected Henry M. Williams, President; Edwin Evans, Vice-President; Chas. E. Bond, Secretary and Treasurer.

Grand Trunk.—Mr. George B. Reeve, Traffic Manager of all the lines west of the Detroit River (Chicago & Grand Trunk; Detroit, Grand Haven & Milwaukee; Michigan Air Line; and Chicago, Detroit & Canada Grand Trunk Junction), has issued the following circular: "Mr. John Main has been appointed Assistant General Freight Agent of the above lines, with headquarters in Detroit. He will have immediate charge of all the local freight business, that is, freight originating on these lines irrespective of destination. The through freight traffic, originating at Chicago or west thereof and at Milwaukee or beyond, will be attended to from my office in Chicago. It is desirable that, as far as possible, agents should be particular in addressing their inquiries respecting local freight direct to the office in Detroit and those with regard to through freight to the Chicago office."

"Mr. W. E. Davis is appointed Assistant General Passenger Agent, with headquarters in Chicago. The passenger traffic of these lines will be conducted from the Chicago office."

"Mr. J. E. Quick has been appointed General Baggage Agent of the entire lines, with headquarters at Port Huron. All communications relative to that department to be addressed direct to him."

"Mr. Ben Fletcher has been appointed Traveling Passenger Agent for these lines. His office will be in Detroit."

"Agents will commence to act upon this circular on Monday next, Aug. 11."

Greenville & Laurens.—At the annual meeting in Greenville, S. C., on Aug. 7, the following were elected: President, W. L. Mauldin; Directors, T. C. Gower, W. C. Cleveland, G. W. Sullivan, T. Q. Donaldson, S. S. Crittenden, John R. R. Harrison, Greenville, S. C.; J. A. Barksdale, J. W. Ferguson, A. C. Fuller, Albert Dial, J. O. C. Fleming, M. S. Baily, Laurens, S. C. The board elected A. B. Boyd, Treasurer; W. J. Kirk, Chief Engineer.

Iowa & Dakota.—The directors of this new company are: R. F. Woolfolk, Bismarck, Dak.; Charles B. Walker, Pierre, Dak.; E. P. Caldwell, Huron, Dak.; Bartlett Tripp, Yankton, Dak.; F. T. Evans, Sioux City, Ia.; C. A. Clark, Osceola, N. Y.

Louisville & Nashville.—The board has elected John J. Carter a director in place of F. D. Carley, resigned.

Louisville, New Orleans & Texas.—The officers of this consolidated company are: President, R. T. Wilson, New

York; Vice-President and General Manager, J. M. Edwards, Vicksburg, Miss.; Secretary, C. H. Bosher; Treasurer, T. H. Davis.

Middletown & Crawford.—This company has elected E. M. Madden President; E. S. Bowen, Vice-President; L. P. Madden Secretary and Treasurer. The road is leased to the New York, Lake Erie & Western.

New Haven & Derby.—The board has elected Joel A. Sperry, of New Haven, Conn., President, in place of J. H. Bartholomew, deceased.

New York & Long Branch.—The following circular from Mr. H. S. Little, President of this company, is dated New York, Aug. 4:

"Mr. Rufus Blodgett has been appointed Superintendent of the New York & Long Branch Railroad to take effect this date. Mr. H. H. Nieman has been relieved from the performance of the duties of such office."

New York, West Shore & Buffalo.—Mr. Thomas Aldcorn is appointed Master Mechanic of the Hudson River Division (in place of H. Linn, resigned), with office at New Durham, N. J. To take effect Saturday, Aug. 16.

Norfolk & Virginia Beach.—Mr. J. H. Hopkins, of Pennsylvania, has been chosen President in place of Marshall Parks.

Pittsburgh & Western.—On Aug. 1 the following changes went into effect: J. L. Kirk, Auditor of the Pittsburgh & Western Railroad, will also have charge of the accounts of the Pittsburgh, Cleveland & Toledo Railroad, and will be relieved of the duties of General Passenger and Ticket Agent. C. W. Bassett has been appointed Assistant General Passenger and Ticket Agent, and will have full charge of the ticket and baggage departments of the Pittsburgh & Western Railroad.

Reading & Lebanon.—Mr. Charles McFadden, of Philadelphia, is President of this new company.

South Bend Belt.—The directors of this new company are: Andrew Anderson, T. G. Beaver, A. Coquillard, James A. Inness, Thomas B. Inness, Robert Myler, T. S. Stanfield, L. C. Twombly, J. C. Knobloch. Office in South Bend, Indiana.

South Bend & State Line.—The directors of this new company are: Andrew Anderson, T. G. Beaver, Thomas Inness, Henry Kiphart, J. C. Knobloch, Robert Myler, J. H. Matthews, Frederick Macomber, T. S. Stanfield. Office in South Bend, Indiana.

Union Pacific.—Mr. Thomas L. Kimball has been appointed Traffic Manager, and placed in charge of the freight and passenger departments, reporting directly to the President and being responsible only to him. Mr. Kimball has been for some time past Assistant General Manager, and was formerly General Passenger Agent of the road.

Wabash, St. Louis & Pacific Leased Lines.—Changes have been made in the officers as follows: Brunswick & Chillicothe—James F. How, President; Clarinda & St. Louis—W. H. Blodgett and Charles M. Hays, directors in place of H. M. Hoxie and R. S. Hayes; Council Bluffs & St. Louis—Charles M. Hays, a director in place of R. S. Hayes; St. Louis, Council Bluffs & Omaha—A. A. Talmage, President, in place of H. M. Hoxie; St. Louis, Ottumwa & Cedar Rapids—A. A. Talmage, President, in place of H. M. Hoxie.

PERSONAL.

—Mr. John W. Davis, Assistant to the First Vice-President of the Baltimore & Ohio, has been appointed by the Governor of Maryland a member of the board of Police Commissioners of the city of Baltimore.

—Mr. Samuel Evans Spring, a prominent citizen and merchant of Portland, Me., died in that city, Aug. 10, aged 72 years. He had served at different times as a director in the Maine Central and the Portland & Ogdensburg companies.

—Mr. Lemuel T. Williams, Assistant Division Superintendent of the Richmond & Danville road, committed suicide Aug. 11 at Terra, Ga. He is supposed to have been insane from overwork, his mind having been affected for several days.

—Mr. D. H. Purdon has resigned his position as Master of Transportation of the Vicksburg & Meridian and the New Orleans & Northeastern divisions of the Cincinnati, New Orleans & Texas Pacific lines, to take effect Sept. 1. Mr. Purdon will, it is understood, go to Canada to take charge of a road there.

—Mr. Wm. A. Whitehead, for many years a well-known business man and author of Newark, N. J., died Aug. 8, at his summer residence in Perth Amboy, N. J. Mr. Whitehead was Treasurer of the New York & Harlem Railroad Co. for several years, about 1840-45, and was afterwards for a number of years connected with the New Jersey Railroad & Transportation Co. He was the author of several valuable works on state and local history.

—It has been reported that Mr. Hugh J. Jewett was about to retire from the presidency of the New York, Lake Erie & Western Co., the 10 years' contract, under which he first took the office, having expired last month. It is officially stated, however, that there is no foundation for the report except the fact that Mr. Jewett recently asked the board to relieve him from a part of the work which now devolves upon him, as it taxed his strength too much. The board referred his request to a committee, which has not yet presented its report.

—Mr. J. Aug. Durgin has taken charge of the New York Locomotive Works at Rome, N. Y., as Vice-President and General Manager. Mr. Durgin has his headquarters for the present at No. 34 Pine street, New York, but will spend as much of his time at Rome as may be necessary to secure the proper management of the works. Mr. Durgin is well and widely known to locomotive men and railroad officers generally, having been for eight years Superintendent of the Pittsburgh Locomotive Works, and for seven years Agent and Superintendent of the Rhode Island Locomotive Works. He now returns to active business after a well-earned vacation of a year, which he has spent chiefly in traveling in Europe and Mexico.

TRAFFIC AND EARNINGS.

Southern Railway & Steamship Association.—Under date of Aug. 8, General Commissioner Virgil Powers sends out, for the information and consideration of members of the Association, a notice received from Mr. Henry Fink, Vice-President and General Manager of the East Tennessee, Virginia & Georgia. The notice is addressed to the General Commissioner and is as follows:

"I will thank you to notify all parties interested that after Sept. 1, of the present year, the East Tennessee, Virginia & Georgia Railroad Co. will no longer be a party to the cotton pools now existing at Atlanta and Macon."

Railroad Earnings.

Earnings for various periods are reported as follows:

Seven months ending July 31:

	1884.	1883.	Inc. or Dec.	P.c.
Boston, Hoosac	\$234,160	\$179,557	I. \$54,642	30.4
Tun. & W.	1,474,712	1,476,847	D. 2,135	0.2
Bur., C. R. & N.	12,350,000	13,534,115	D. 1,214,115	9.0
Central Pac. Co.	2,035,280	2,132,067	D. 96,787	4.5
Ches. & Ohio	890,089	874,866	I. 16,233	1.8
Cin., Ind., St. L. & Chi.	1,321,975	1,348,254	D. 26,279	2.0
Cleve., A. & C.	266,736	294,416	D. 27,680	9.4
Eliz. Lex. & B. S.	302,329	330,062	I. 28,737	3.2
Ev. & Terre H.	401,143	397,569	I. 3,574	0.9
Flint & P. M.	1,384,043	1,446,429	D. 63,786	4.4
Gr. & Trunk	9,285,688	10,444,091	D. 1,158,403	11.1
G. B. & St. P.	183,309	216,500	D. 23,191	10.6
Il. Central	5,498,216	5,742,459	D. 243,243	4.3
Ind. & St. L.	191,694	1,0-2,505	D. 188,259	15.5
Long Island	1,495,92	1,472,316	D. 23,666	1.5
Mobile & Ohio	1,100,570	1,097,610	D. 2,900	0.3
Peoria, Dec. & E.	418,056	377,875	I. 40,181	10.6
Roch. & Pitts.	629,339	273,694	I. 355,545	129.9
St. L. Ft. Scott & Chi.	263,106	109,806	I. 153,300	139.6
St. P. & Duluth	6,2,507	632,021	D. 39,514	6.1
St. P. M. & Man.	4,250,528	4,525,308	D. 263,782	5.8
Wis. Central	824,572	787,431	I. 37,141	4.7

Six months ending June 30:

	1884.	1883.	Inc. or Dec.	P.c.
Bur., C. R. & N.	\$1,274,743	\$1,280,588	D. \$2,115	0.2
Net earnings...	335,919	323,745	I. 32,174	9.9
Chi., Bur. & Q.	11,616,021	11,405,203	I. 210,818	1.8
Net earnings...	5,158,970	5,381,546	D. 222,576	4.1
Denver & R. G.	3,034,512	3,371,27	D. 336,695	9.9
Net earnings...	569,970	1,193,986	D. 624,04	52.3
Des. M. & Ft. D.	155,989	136,406	I. 19,583	14.2
Net earnings...	38,591	18,432	D. 20,159	109.2
Louis. & Nash.	6,556,245	6,375,383	I. 180,862	2.8
Net earnings...	2,254,480	2,465,695	D. 210,215	8.5
N. Y. L. Erie & W.	9,471,512	10,167,403	D. 69,951	6.9
Net earnings...	1,536,414	2,761,141	D. 1,224,727	44.0
Shenandoah V.	314,230	336,300	D. 42,130	11.8
Net earnings...	26,914	42,807	D. 15,893	36.9
Utah Central	474,366	574,479	D. 10,113	17.4
Net earnings...	180,462	200,876	D. 110,414	38.0

Month of May:

	1884.	1883.	Inc. or Dec.	P.c.
Conn. & Val.	\$27,506	.....	.....	.....
Net earnings...	4,845	.....	.....	.....
Month of June:	.....	.....	.....	.....
Bur., C. R. & N.	\$206,418	\$216,616	D. \$10,198	4.7
Net earnings...	46,861	57,265	D. 10,404	18.2
Chi., Bur. & Q.	2,077,182	1,937,915	I. 139,267	7.2
Net earnings...	1,012,741	941,687	I. 68,054	7.2
Conn. & Val.	27,520	30,937	D. 3,417	11.1
Net earnings...	8,402	8,952	D. 550	6.1
Denver & R. G.	583,707	678,781	D. 94,984	14.0
Net earnings...	194,442	234,265	D. 50,823	21.5
Des. M. & Ft. D.	23,726	22,669	I. 1,057	4.6
Net earnings...	5,431	1,854	D. 3,577	102.9
Louis. & Nash.	1,032,359	1,090,706	D. 58,347	5.3
Net earnings...	394,288	459,68	D. 64,780	14.1
N. Y. L. Erie & W.	1,500,568	2,057,547	D. 487,979	23.7
Net earnings...	312,755	615,722	D. 302,967	49.2
Shenandoah Val.	50,066	70,109	D. 20,043	28.6
Net earnings...	83,07	17,982	I. 61,03	7.6
Utah Central	85,932	79,829	I. 6,103	7.6
Net earnings...	38,288	34,106	I. 4,182	13.9

Month of July:

	1884.	1883.	Inc. or Dec.	P.c.
Boston, Hoosac	\$7,311	\$30,672	I. \$12,630	40.8
Tun. & W.	195,970	195,989	D. 19	0.1
Bur., C. R. & N.	1,844,000	2,036,216	D. 19,216	9.4
Central Pacific	3,272,033	335,208	I. 8,175	2.4
Ches. & Ohio	124,877	120,125	I. 4,752	3.9
Chi., & W. Mich.	211,822	190,122	I. 21,700	11.4
Cleve., A. & C.	41,132	43,985	D. 2,853	6.5
Eliz. Lex. & B. S.	67,035	61,435	I. 4,503	7.0
Ev. & Terre H.	73,497	50,331	I. 14,163	24.0
Flint & P. M.	171,148	184,427	D. 13,279	7.2
Grand Trunk	1,317,185	1,411,712	D. 94,527	6.7
G. B. & St. P.	22,468	22,479	D. 3,011	11.8
Il. Central	707,097	772,792	D. 65,695	8.5
Ind. & St. L.	121,197	154,678	D. 33,481	21.8
Kentucky Cent.	84,397	80,729	I. 3,668	4.5
Long Island	368,317	370,511	D. 11,174	2.9
L. & E. & St. L.	56,000	48,000	I. 8,000	16.7
Mobile & Ohio	128,415	134,464	D. 6,049	4.6
Ohio Central	101,218	84,731	I. 16,487	19.4
Peoria, Dec. & E.	54,002	43,820	I. 8,182	18.0
Roch. & Pitts.	111,298	63,486	I. 47,702	75.2
St. L. Ft. Scott & Chi.	39,653	20,222	I. 19,431	96.2
St. P. & Duluth	1,16,773	1,17,924	I. 21,151	14.1
St. P. M. & Man.	662,010	672,768	D. 10,756	1.6
Wisconsin Cent.	106,771	109,150	D. 2,38	2.2

First week in August:

	1884.	1883.	Inc. or Dec.	P.c.

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1881-2 is 305,275 bales, and the decrease from 1880-81 is 858,057 bales.

Utah Traffic Association.

At a meeting held in Chicago, Aug. 7, representatives of all the roads concerned in the association were present. There was a general discussion, especially with reference to the notice of withdrawal from the pool given by the Atchison, Topeka & Santa Fe. It was finally agreed to continue the pool until Sept. 23 and the Santa Fe road was prevailed upon to withdraw its notice until then.

Chicago-St. Louis Pool.

Representatives of the lines concerned in this pool met in Chicago, Aug. 7, and agreed to extend the pool until Sept. 15, as the arbitrator has not rendered his decision in regard to the division of business, but will probably be ready before that time.

Central Iowa Traffic Association.

At a meeting of the association held in Chicago, Aug. 7, it was announced that the association was fully organized, and the Wabash road was formally admitted as a member. It was agreed that rates should be advanced and a new schedule was adopted to go into effect Aug. 22, on the basis of 75 cents for first class from Chicago to Des Moines.

The Chicago Conference.

The conference held in Chicago last week was continued Aug. 7, when it was said that a more friendly feeling prevailed. It was agreed to maintain all the rates between Chicago and Colorado points and between Chicago and Utah points, and also between Chicago, Council Bluffs and Omaha. It was also agreed that rates should be advanced to local points in Iowa, and that the existing freight rates between Chicago and St. Louis should be maintained for the present.

The committee to discuss the subject of Colorado rates reported in favor of adopting two pools on the Colorado business, one east and one west of the Missouri River, with a commissioner, general agreement and conditions similar to those in force in the former Colorado Traffic Association, the proposed pools to continue for 13 months from Aug. 1, any line being allowed to withdraw by giving 30 days' notice and any differences to be submitted to arbitration. A resolution in favor of adopting the report of the committee was lost, although the majority voted in its favor, four companies refusing to vote. After some discussion a resolution was adopted providing for the appointment of a committee of five to meet at the earliest possible time with a view of devising and recommending a plan for the adjustment of all differences in the manner of conducting the freight traffic which is competitive between the lines extending to and beyond the Missouri River, this committee to report at a meeting to be held not later than Sept. 23. The present status as to rates, agreements, etc., to continue until that meeting.

At the close of the Colorado meeting the subject of rates to Council Bluffs and Omaha was discussed, and it was agreed to restore the rates and maintain the old tariff until the adjourned meeting.

On the following day the special committee met to discuss the situation, but no conclusions were reached and an adjournment was had. It is understood that the Chicago & Northwestern road has given notice of withdrawal from the tripartite agreement about which so much was said a few months ago. That agreement has practically failed of its purpose, and the withdrawal of the Northwestern will break it up completely.

A meeting was held in Chicago, Aug. 13, to consider the withdrawal of the Chicago & Northwestern from the tripartite agreement. The Union Pacific was not represented, however, and nothing could be done.

Lumber Rates.

At a meeting held in Chicago, Aug. 7, the question of lumber rates to Iowa points was discussed, with a view to securing an advance, but no settlement could be reached. An adjourned meeting was held on the following day, when matters were referred to a committee to report at a future meeting.

RAILROAD LAW.

The Law of Receivers.

In a recent case before the United States Circuit Court at St. Louis, where a receiver was asked for, Judge Treat, in his decision, used the following language respecting the duties of a receiver and the obligations of the court:

"A bill of the part of the mortgagor was filed in this case for the foreclosure of a mortgage and the appointment of a receiver *per tenta lata*. The allegations of the bill were that the managers of the road had practically abandoned the control and conduct of the same, whereby the preservation of the property required a receiver *pendente lata*. A court could not, on mere default of interest on bonds, take possession of a railway and substitute a receiver of its appointment to do what the corporate authorities, more familiar with its interests, could better do. In the absence of fraud, incompetency, etc., the court, pending a proceeding for a foreclosure, under ordinary circumstances, will not take possession through its receiver of the corporate property, and substitute its officer in the place of the corporate officers. It may be that the view is creeping into administration of law that when a mortgagor asks for a foreclosure and receiver, if default of interest has occurred, the court must appoint a receiver and operate the road accordingly. Indeed, this view has been carried so far as to permit the receiver to build unfinished roads, supply feeders, etc., of the road which comes into his hands. It is true that there should be a more clearly defined view judicially of the rights and duties involved in such cases. It is not needed now that the whole subject should be reviewed, whereby what is an abuse of the forms of law has imposed upon courts the construction of railroads, their extension or operation for an indefinite period of time. Courts are not designed for such railroad operation, through their administrative officers or otherwise. The sole object in ordinary cases of foreclosure, if the corporate authorities in possession are incompetent, is to put the property in the receiver's hands for the interest of all concerned in the litigation, viz.: stockholders, mortgagees, other lien creditors, creditors at large, etc. Courts should not interfere with the custody and management of the business of the corporation through its corporate officers pending litigation, except for cause shown."

OLD AND NEW ROADS.

Americus, Preston & Lumpkin.—Mr. H. L. Collier, Chief Engineer of this company, advertises for bids for the grading, trestling and cro-s-ties for this projected road, which is to run from Americus, Ga., on the Southwestern Division of the Central Railroad westward through Preston to Lumpkin in Stewart County, a distance of about 40 miles. A permanent location has been completed and the profiles and specifications will be ready very shortly. Contractors will be required to begin work by Sept. 15, and to complete it by Feb. 1, 1885. It is stated that the stock subscription is sufficient to pay for the grading and bridging of the road.

Anglesea.—In Trenton, N. J., Aug. 12, the Vice-Chancellor granted a rule to show cause why a receiver should not be appointed for this company. The application was made by Mr. S. H. Morrison of Camden, a creditor. The line is a short summer road running from the West Jersey road to Anglesea Beach near Cape May.

Butte & Atlantic.—This company has been organized to build a railroad from Gallatin, Montana, to Butte, 72 miles, with branches to Dillon and Virginia City.

Central Pacific.—This company announces a new issue of \$1,600,000 California & Oregon Division bonds. The new issue is made on 40 miles of road recently completed from Reading, Cal., to Delta.

Chattanooga & Lookout Mountain.—This company has been organized to build the projected railroad from Chattanooga, Tenn., to the summit of Lookout Mountain. The capital stock is fixed at \$65,000. The road is to have a third or rack rail, on the same plan as the Mt. Washington Railroad.

Chester & St. Louis.—It is proposed to build a railroad from Chester, Ill., northeast through Sparta to Coulterville, on the St. Louis, Alton & Ferre Haute's branch line. The distance is 23 miles and the road will open up the coal fields of Randolph County.

Chicago, Burlington & Quincy.—This company's statement for June and the six months ending June 30 is as follows:

	June.	1884.	Six months.	1883.
Earnings	\$2,077,192	\$1,937,615	\$11,616,021	\$11,465,203
Expenses	1,064,441	993,228	6,437,651	6,023,657
Net earnings	\$1,012,741	\$944,687	\$5,158,970	\$5,381,546
Per cent. of exps.	51.2	51.3	55.6	52.8

For the six months the gross earnings show a gain of \$210,818, or 1.8 per cent., and the expenses an increase of \$433,394, or 7.2 per cent.; the result being a decrease of \$222,576, or 4.1 per cent., in net earnings.

Connecticut & Passumpsic Rivers.—The report of a sale of a controlling interest in this company to the Connecticut River Railroad Co. is contradicted. Mr. Warren K. Blodgett, one of the most active directors, says that the stock is widely distributed, being held chiefly as an investment in small lots. The directors of the company do not own a controlling interest, or anywhere near it, and a large purchase of the stock could not be made without attracting attention and running up the market price. Mr. Blodgett says that within a year the directors have been asked by Mr. Harris, of the Connecticut River Co., to name a rental for the road or a price for the stock, but the figures named were considered too high and nothing more came of it. The relations of the company with the Connecticut River Co. are friendly and always have been so as much business passes between the two roads, and the election of one or more of the Connecticut River directors to the Passumpsic board is not improbable.

Connecticut River.—The second track on this road is now completed from Springfield, Mass., to Greenfield, 36 miles, and will be in use next week. The second track to Northampton, 17 miles, was built about 10 years ago, and no extension was made until last summer, when work was begun on the 19 miles from Northampton to Greenfield. Some heavy work has been required at several points, and between Deerfield and Greenfield the road has been straightened and shortened, an entirely new road-bed being built in several places.

Denver & Rio Grande.—This company's statement for June and the six months ending June 30 is as follows:

	June.	1884.	Six months.	1883.
Earnings	\$583,797	\$678,781	\$3,034,572	\$3,371,207
Expenses	389,355	424,516	2,464,542	2,177,221
Net earnings	\$194,442	\$254,263	\$1,69,970	\$1,193,986
Per cent. of exps.	66.7	62.5	81.2	64.6

For the six months this shows a decrease in gross earnings of \$236,695, or 9.9 per cent.; an increase in expenses of \$287,221, or 13.2 per cent.; and a resulting decrease of \$624,016, or 52.3 per cent., in net earnings.

It is stated that the Receiver has made an agreement with the Denver & New Orleans Co. by which passenger and freight rates between Denver and Pueblo and to intermediate points are to be maintained hereafter. For over a year the rates have been cut and competition has been very sharp, both roads having at one time carried passengers from Denver to Pueblo (120 miles) for 75 cents.

Denver & Rio Grande Western.—The application for the appointment of a receiver for this road, which was withdrawn by the Denver & Rio Grande Western Co., has been renewed by the Denver & Rio Grande Western Co., in the United States Circuit Court at Salt Lake.

Eastern.—The earnings of this road for the nine months of its fiscal year from Sept. 1 to June 30, were as follows:

Gross earnings	.....	.....	\$2,472,108
Expenses	.....	.....	1,692,447

Net earnings \$779,661

The road is reported as doing a large passenger business this summer, although the freight traffic has been hardly equal to that of last year.

Elmira, Cortland & Northern.—Since this road passed into the possession of the present company many improvements have been made. Steel rails have been laid at the points where they were most needed, a large number of new ties put in and bridges and trestles rebuilt. The company has added to the equipment 7 new locomotives and a large number of freight cars, and 9 new passenger cars have been ordered.

Georgia.—A dispatch to the Atlanta *Constitution* from Augusta, Ga., Aug. 9, says: "The Constitution's readers will recall a rumor in circulation some time ago in regard to breaking the lease of the Georgia Railroad. It now transpires that the report has more foundation than was at first supposed, the matter being now actually under advisement. Two prominent lawyers have been consulted, and they entertain the opinion that the lease is invalid and can be successfully attacked. In the event of certain contingencies it is probable the attempt will be made presumably upon article 4, paragraph 4, of the state constitution, which reads: 'The General Assembly of this state shall have no power to authorize any corporation to buy shares or stock in any other corporation in this state, or elsewhere, or to make any contract or agreement whatever with any such corporation, which may have the effect, or be intended to have the effect, to defeat or lessen competition in their respective businesses, or to encourage monopoly; and all such contracts and agreements shall be illegal and void.'

"The defense will urge that the lease was made to individuals, W. M. Wadley and associates, and it is also intimated that if the dull time continues, that the Georgia road will not be able to earn the rental, 12 per cent., and hence the Central will be willing to surrender the lease.

"Certain it is, the matter is of the greatest importance to

the business interests of the city, and the issue will be watched anxiously."

President Poincy, of the Georgia Railroad Co., denies all the reports concerning the lease. He says that the road is fully earning the rental paid, and even if it were not, the advantages which it secures to the joint lessees are such that they would be unwilling to give it up.

Greenville & Laurens.—At the annual meeting in Greenville, S. C., last week the reports of the officers stated that the grading of the road is progressing rapidly and will be finished at an early day. This will cost some \$65,000 for 37½ miles. The estimated cost of all the necessary trestling is put at \$18,000. President Maundin's report states that in all reasonable probability the road will be completed at a cost of several thousand dollars less than at first supposed, and be in good running order by next May.

Houston & Texas Central.—The work of replacing the iron rails on the main line of this road with steel is now completed. The 338 miles from Houston, Tex., to Denison are now all laid with steel, and in better condition than ever before.

Illinois Central.—This company's statement for July gives the earnings of the road for that month as follows:

	1884.	1883.	Decrease.	P.c.
Road owned	\$707,007	\$772,792	\$65,685	8.5
Iowa leased lines:				
Dubuque & Sioux City	64,704	84,500	19,876	23.4
Ia. Falls & Sioux City	48,080	60,959	12,299	24.1
Cedar Falls & Minn.	7,833	9,139	1,306	14.5
Total Iowa lines	\$121,197	\$154,678	\$33,481	21.6
Total	.....	.....	.....	.....
	\$828,294	\$927,470	\$99,176	10.7

The road owned includes the lines in Illinois and the Southern Division. The earnings are estimated in 1884 and actual last year.

Illinois Southern & Paducah.—The survey of this new road is now nearly completed. The projected line will cross the Ohio River at Metropolis, Massac County, Ill., connecting with the Chesapeake & Ohio at Paducah, Ky., and run northwest from Metropolis to St. Louis. The road will pass through Massac to Vienna, the county seat of Johnson County, and thence through the northwest corner of Union County to Carbondale, Jackson County, and thence continuing northwest to Murphysboro, the county seat of Jackson County, reaching the Mississippi River a little south of Rockwood, in Randolph County; continuing along the river bank to Chester, the road will run through the Okaw River Valley to Evansville, where it will cross the Okaw and run north to Ruma and Red Bud, and there cross the St. Louis & Cairo road, and thence will run north to Freedom, Monroe County, and from there to Georgetown, St. Clair County, passing through the famous High Prairie coal field, thence west to the Mississippi, at East Carondelet, in East St. Louis.

This new road, it is claimed, will open up a section of Southern Illinois rich in agricultural products, coal, iron, lead, potter's clay and hard wood timber, now entirely closed to commerce.

Iowa & Dakota.—This company was recently organized to build a railroad from Sioux Falls, Ia., to Bismarck, Dak., with numerous branches and spurs. The total length of road covered by the charter is about 600 miles.

Iron.—A meeting of the second or income mortgage bondholders of the Iron Railroad Division of the Toledo, Cincinnati & St. Louis Co., who have been shut out in the organization of the new company by the first mortgage bondholders, was held in Boston, Aug. 8. The committee reported that before the sale they had received assurances from the first mortgage bondholders' committee that their rights would be considered, and were asked to submit a plan of reorganization. The formation of the plan was deferred and the committee learned finally that the first mortgage bondholders had gone ahead and acted without regard to their interest on the property. They presented a protest against the reorganization, of which no notice has been taken, and had also filed a bill in equity asking the Court to set aside the proceedings. The bondholders adopted a resolution authorizing the committee to take all steps which in their judgment may be necessary to prove the rights of the income bondholders, and authorizing a subscription or assessment to defray the expenses of litigation. The meeting then adjourned.

Jacksonville, Tampa & Key West.—This company's latest time table shows three trains (two passenger and one freight) running each way daily over the road between Jacksonville, Fla., and Palatka. The passenger trains run on a schedule of 30 miles an hour between stations. The stations on the road, with the distances from Jacksonville, are: Waycross Junction, 0.75 mile; Reed's, 11.10; Orange Park, 13.92; Ridgewood, 18.01; Black Creek, 20.28; Fleming, 23.79; Magnolia, 28.15; Green Cove Springs, 28.71; Melrose Crossing, 29.66; Clinch, 34.07; West Tocoi, 40.08; Bowstring, 45.57; Tensaw, 48.43; Sauble, 51.63; Florida Southern Junction, 54.75; Palatka, 55.75 miles.

Kansas City, Fort Scott & Gulf.—Reports are current in Boston that the Kansas City, Springfield & Memphis Co. will shortly be consolidated with this company. Information on the subject is not definite, although it is reported that two shares of Fort Scott & Gulf will be issued for three of the Memphis Co.'s stock. The two companies are controlled and chiefly owned by the same persons, and the roads are worked together as a continuous line, so that consolidation would make only a formal difference in their relations.

Louisville & Nashville.—A meeting of the board was held in New York Aug. 8, when the new plan of financial relief was brought up but no final action was taken. The plan was referred to a committee of five directors for further consideration and to report at a future meeting. It is stated, however, that this delay has no significance other than the desire to have one or two points in the plan made perfectly clear and legal.

This company's statement for June and the fiscal year ending June 30 is as follows:

	1884.	1883.	1883-84.	1882-83.
Earnings	\$1,032,359	\$1,090,706	\$14,311,110	\$13,25,516
Expenses	638,071	631,638	8,823,783	8,099,150
Net earnings	\$394,288	\$459,068	\$5,527,327	\$5,136,766
P.c. exps.	61.8	57.9	61.5	61.2

The year shows an increase in gross earnings of \$1,115,194, or 8.4 per cent., with an increase in expenses of \$74,633, or 8.9 per cent., the result being a gain of \$390,561, or 7.6 per cent., in net earnings. This is a better showing than had been expected.

Louisville, New Orleans & Texas.—At meetings held in New Orleans recently, and in Memphis last week, the organization of this company was completed by the final consolidation of the Mississippi Valley, the New Orleans, Baton Rouge, Vicksburg & Memphis, the Memphis & Vicksburg

and the Tennessee Southern companies, the organizations chartered in the states through which the road passes. The consolidated company owns the new line from Memphis to New Orleans, which is now rapidly approaching completion.

Lynchburg & Southwestern.—At a late meeting of the corporators of this road, Capt. Izard, the engineer engaged to make a preliminary survey, presented his report giving the length of the proposed line from Lynchburg, Va., to a point in Ashe County, N. C., as 176 miles. He estimated the cost of the grading at about \$8,500 per mile. Efforts will be made to secure subscriptions from the Virginia counties along the line.

Memphis & Little Rock.—In the United States Circuit Court at Little Rock, Ark., Aug. 7, a decree was entered transferring the possession of this road to R. K. Dow and others, trustees for the first-mortgage bondholders. The company entered notice of an appeal to the United States Supreme Court and it was ordered that the present Receiver remain in possession of the road until the appeal is heard and decided.

Meriden & Cromwell.—The grading on this road is now substantially finished from Cromwell, Conn., on the Connecticut River, to Meriden, 13 miles. The track has been laid from Cromwell westward 8 miles and the road, it is expected, will be completed during the present month.

Mexican Railroad Notes.—The Mexican Central Railroad is developing quite a business in the carrying of fruit from Mexico to the United States. The shipments in one week, ending Aug. 1, included 382 baskets of peaches, 1,200 boxes of pears, 1,410 crates of strawberries, 410 bunches of bananas, 365 cases of pineapples and 1,242 boxes of different fruits, including mangoes, oranges, limes, etc. The total number of packages was 5,818, and the business makes quite a respectable showing considering that nothing was done in this line by rail till within the past month or two.

On the Sonora Railroad a good deal of work is being done in the way of strengthening abutments and bridge piers at different points on the line where floods are feared and also in rip-rapping the slopes and making every preparation for high water. At several points on the line the trouble is not so much from high water as from the want of water altogether. The company is sinking artesian wells to provide water for its locomotives.

Michigan & Ohio.—After much negotiation this company has completed arrangements for a close connection and interchange of traffic with the Chicago & West Michigan road. The arrangement includes the running of through passenger cars between Toledo and Muskegon.

Montpelier & Wells River.—Current reports that negotiations are in progress for a lease of this short road to the Boston & Lowell Co., with whose White Mountain Division it connects at Wells River, have been contradicted, and it is said that no lease is contemplated and that there had been no negotiations on the subject.

New Castle Northern.—In the suit brought by this company to annul a contract made with Thomas P. Simpson by a former board, the United States Circuit Court in Pittsburgh decides that the contract should be annulled, for the reason that it has terms beyond the power of the company to make, and provides for excessive issues of stock and bonds. A master is to be appointed to ascertain what work has actually been done and to fix a price for the same.

New Haven & Derby.—For the nine months of its fiscal year from Oct. 1 to June 30 this road earned \$116,330, against \$121,329 for the corresponding period last year, a decrease of \$4,999, or 4.1 per cent. The loss was entirely in freight earnings.

New York Central & Hudson River.—Reports are current that this company is about to make an issue of new debenture bonds, the amount being stated variously at from \$10,000,000 to \$15,000,000. The officers of the company neither admit nor deny the truth of the reports. Another version of the rumor is that Mr. Vanderbilt has recently advanced the company \$4,000,000, taking an equal amount of the new bonds in payment. The object of the new issue is not stated.

New York, Chicago & St. Louis.—This company's report to the New York Railroad Commission for the quarter ending June 30, gives, with the previous report, the following figures for that quarter and for the half-year ending June 30:

	Quarter.	Six Months.
Earnings.	\$751,077	\$1,555,963
Expenses.	530,155	1,000,803
Net earnings.	\$211,922	\$465,160
Interest, rentals and taxes	361,071	689,863
D. deficit	\$149,149	\$34,643

No statements were made last year. The balance sheet on June 30 shows the floating debt, including current accounts, to be \$4,153,597. The cash and accounts receivable amounted to \$955,230, leaving the debt over assets at \$3,198,367, an increase of \$181,002 in the quarter.

New York, Lake Erie & Western.—This company makes the following statement for June and the nine months of its fiscal year from Oct. 1 to June 30, the earnings including 68 per cent. of the gross earnings of the leased New York, Pennsylvania & Ohio road and all the working expenses of that road for the whole period this year, but for two months only last year, the lease dating from May 1, 1883:

	June.	1884.	1883.	1883-84.	1882-83.
Earnings.	\$1,569,568	\$2,057,547	\$15,887,207	\$15,496,701	
Expenses.	1,256,813	1,441,825	12,578,005	10,883,277	
Net earnings.	\$312,755	\$815,722	\$3,309,202	\$4,603,414	

This statement shows for the nine months an increase in gross earnings of \$390,506, or 2.5 per cent.; an increase in expenses of \$1,684,718, or 15.5 per cent., and a decrease of \$1,294,212, or 28.2 per cent., in net earnings. The large increase of expenses is, of course, due to the fact that the New York, Pennsylvania & Ohio was operated for nine months this year, but for two months only last year.

A supplementary statement gives the earnings of the New York, Lake Erie & Western, excluding all earnings and expenses of the New York, Pennsylvania & Ohio as follows:

	June.	1884.	1883.	1883-84.	1882-83.
Earnings.	\$1,281,157	\$1,063,038	\$12,863,625	\$14,706,377	
Expenses.	920,529	1,085,020	9,262,465	10,204,584	

Net earnings. \$360,628 \$568,018 \$3,631,160 \$4,501,523
Per cent. of exps. 71.9 65.8 71.8 69.4

This shows for the nine months a decrease in gross earnings of \$1,812,752, or 12.3 per cent., with a decrease in expenses of \$942,389, or 9.2 per cent., the resulting decrease in net earnings being \$870,383, or 19.3 per cent.

From these statements it appears that the 68 per cent. of the gross earnings of the New York, Pennsylvania & Ohio amounted this year to \$288,411 for June and \$2,993,583 for the nine months, while the expenses of that road for the same

periods were \$396,284 and \$3,315,540, thus showing a direct loss from the operation of the leased road of \$47,873 in June and \$321,957 for the nine months. For June, 1883, the receipts were \$394,509 and the expenses \$316,805, showing a profit of \$47,704 for the month.

New York, Ontario & Western.—The report of the London committee of stockholders recounts the organization of the road, and says the syndicate which secured control in January, 1881, subsequently obtained control of the New York, West Shore & Buffalo, together with the North River Construction Co., which built the West Shore. This language is used:

"The committee cannot too strongly express their opinion that all the misfortunes of the Ontario Co. have arisen from the unjustifiable manner in which the finances of the company have been mixed up with those of the companies above named. Money was loaned and indorsements made between the three companies named as though the proprietary interests were identical. In fact, everything was done as if nothing but unbounded success would attend all these undertakings, and unfortunately the Ontario suffers in the general collapse. The committee, must, however, state, in justice to the controllers of these enterprises, that in the issues of North River Construction stock and West Shore bonds the common shareholders of record in the Ontario Co. were offered and accepted large amounts of those securities on what were considered at the time very advantageous terms."

The following modifications of the contract between the Ontario and the West Shore companies were secured by the London Committee: The guarantee of \$500,000 per annum on the Weehawken Division was modified to the payment of 25 per cent. of the local and West Shore train earnings, at present amounting to about \$200,000. The Ontario Co. retains all its earnings from its own traffic north of Middletown. Commissioner Fink, as arbitrator, reduced the allowance of 60 cents per train-mile for West Shore trains over the leased lines, to 37 cents for passenger trains and 51 cents for freight. This will save the Ontario Co. about \$80,000 per annum. The West Shore Co. owes the Ontario Company for construction, \$704,000, which had been settled under seal, to be an offset against rentals. The West Shore Receivers have been ordered to protect the terminal property, and they are doing so by the sale of receivers' certificates. Four hundred thousand dollars would put the equipment in a satisfactory condition. The floating debt is \$1,395,000. The Walkill Valley road has been handed over to the Ontario Co., which had to pay the joint notes given for its purchase.

The committee recommends stockholders to approve the issue of \$4,000,000 bonds to pay floating debt and take up the preferred stock, as the best arrangement possible under present circumstances.

Northern Pacific.—The July land sales of this company were 26,005 acres, and the receipts of the company for the same were \$137,966, a reduction of 25 per cent. from July, 1883.

Ogdensburg & Lake Champlain.—A dispatch from Boston, Aug. 13, says: "In the United States Circuit Court this morning, Judges Gray and Nelson decided in the suits of the Ogdensburg & Lake Champlain Railroad Co. against the Boston & Lowell, the Nashua & Lowell, the Vermont Central and the Northern (New Hampshire) railroads, that, unless the defendants desire to recommit the case to a master on the question of profits, the bills in equity are to be dismissed and the plaintiff to have the right of appeal. These were suits to recover about \$200,000 under a contract made on Feb. 24, 1871, by the plaintiff, the defendant railroad companies, the Northern Transportation Co. and J. Gregory Smith and George Stark as Trustees, whereby the defendant roads were to advance or loan out of the gross receipts a sum not to exceed \$150,000 semi-annually for the purpose of owning, controlling and developing traffic from the West by boats to Ogdensburg, and thence over their roads to Boston."

Oregon Improvement Co.—This company makes the following statement of its condition on July 1:

Stock.	\$7,000,000
Funded debt	5,000,000
Floating debt	\$981,000
Less cash on hand	192,000
	789,000
Total (approximate) liabilities	\$12,789,000

The interest and sinking fund charges for the year are about \$400,000; the net earnings for the first half of the year were \$343,862.

Of the \$5,000,000 bonds, \$148,000 are held in the sinking fund, but the company pays interest on them. The floating debt is that remaining after the sale of agricultural lands. It is quite possible that it may be funded with a collateral bond, on which money may also be raised for continuing railroad construction abandoned some time since for lack of funds. Some \$600,000 are said to be wanted for this purpose, and there is some talk of an issue of \$1,500,000 of the collateral bonds. No definite action to that end has been taken.

Pittsburgh, Fort Wayne & Chicago.—The answer of this company to the suit of the Pennsylvania Railroad Co. admits the expenditure of certain sums by the plaintiff for various improvements, but denies that these expenditures date from the time the lease was made, or that they were in the aggregate as large as the amount claimed. The answer claims that the company has complied with the requirements of the lease as to the guaranteed special stock and sets up that the plaintiff is not entitled to the relief claimed for various reasons.

Pittsburgh & Lake Erie.—At a special meeting held in Pittsburgh, Aug. 11, the stockholders voted to authorize the company to guarantee the issue of \$2,000,000 of additional mortgage bonds to be made by the Pittsburgh, McKeesport & Youghiogheny Co. The new issue of bonds is to be used to fund the present floating debt of that road, which is leased by the Pittsburgh & Lake Erie Co., and will leave a balance of \$800,000, which will be used to make improvements and extensions of the road, chiefly spurs and branches in the Connellsville coke region. The Lake Shore & Michigan Southern Co. is to guarantee this issue of bonds jointly with the Pittsburgh & Lake Erie.

Portland & Ogdensburg.—The suit of the Mercantile Trust Co., of New York, against this company, brought before the United States Circuit Court, has been set for hearing in Boston on Sept. 4, next.

Reading & Lebanon.—This company has filed articles of incorporation to build a railroad from Reading, Pa., to Lebanon, 80 miles. The line will be parallel and close to that of the Philadelphia & Reading road between the two places. The chief stockholder of the company is Mr. Charles McFadden, of Philadelphia, a well-known contractor.

St. Johnsbury & Lake Champlain.—It is understood that a large and probably controlling interest in this company is now owned by Mr. Harris, of Springfield, and others who are largely interested in the Connecticut River Railroad.

St. Louis, Hannibal & Keokuk.—The Court has instructed the Receiver to pay certain claims for labor performed for the road in November, 1883, before the commencement of the receivership.

San Antonio & Aransas Pass.—The subscribers who adhere to the project of a railroad from San Antonio, Tex., to the Gulf of Mexico at Aransas Pass, have completed an organization of the company. The length of the road will be about 140 miles. The capital stock is fixed at \$2,000,000. The subscription has now reached the amount of \$175,000, and some additions are being secured to the list, but very slowly.

South Bend Belt.—This company has filed articles of incorporation to build a railroad around South Bend, Ind., with a branch or spur into the city. The line will be about six miles long.

South Bend & State Line.—This company has filed articles of incorporation to build a railroad from South Bend, Ind., northwest to the state line, a distance of 8 miles. It is to connect with the proposed South Bend, Niles & St. Joseph road in Michigan.

South Carolina.—This company has begun the work of rebuilding the bridge over the Savannah River at Augusta. The new bridge will occupy the site of the present bridge, and it will take about a year to complete it, as the work must be done without interrupting the use of the old bridge by trains. The new bridge will rest upon stone piers with pile foundations. Four piers and two abutments will be required, the bridge being about 900 ft. long. The present bridge was built in 1860, taking the place of an older one built in 1833, when the road first entered Augusta.

Toledo, Cincinnati & St. Louis.—The Corbin committee for reorganizing the St. Louis Division now asks the bondholders who have signed their plan to sign a new one, which is substantially the same as the first, with the addition of a clause authorizing the committee to call in the bonds without waiting for the assent of the holders of \$1,000,000, as provided for in the first agreement.

A temporary arrangement has been made under which the Cincinnati Division is operated in connection with the Cincinnati Northern. This is terminable on five days' notice, and is only to continue until the bondholders of the Cincinnati Division conclude their reorganization.

Troy & Greenfield.—Both the state of Massachusetts and the Fitchburg Railroad Co. have appealed from the award of the Railroad Commissioners as to the sum to be paid by the company in the yearly settlement of accounts concerning the use of the Troy & Greenfield road and Hoosac Tunnel. The Fitchburg Co. appealed last year, but a compromise was ratified without resorting to the appointment of a special arbitrator. In this case probably an arbitrator will have to be appointed by the Supreme Court as provided by law.

Union Pacific.—This company's land sales for July are reported as follows:

	Union Div.	Kansas Div.	Total.
Acres.	54,310	14,410	68,720
Amount.	\$362,218	\$82,175	\$424,393

In July, 1883, the total sales were 102,552 acres for \$351,598. For the seven months ending July 31 the total sales this year were 2,337,302 acres for \$5,528,350, against 549,768 acres for \$2,190,969 in the corresponding period last year.

Wabash, St. Louis & Pacific.—At the meeting of the directors last week Jay Gould resigned the presidency of the company. He stated that his many engagements would make it impossible for him to give the necessary time to the business of reorganization, and for this reason he asked that some one who could give it the requisite attention should be appointed in his place. The resignation was accepted and James F. Joy, of Detroit, was chosen as his successor. The plan of reorganization proposed by the sub-committee was modified by the directors only in the amount of the assessment on the stocks. It was voted to make this assessment \$8, instead of \$6 a share. The following official statement was made:

"The outlines of the plan are the amicable foreclosure of the general and collateral trust mortgages and the issue of new securities, as follows:

1. Debenture mortgage bonds, 6s, dependent upon income.	\$90,000,000
2. First-preferred stock.	4,000,000
3. Second-preferred stock.	23,000,000
4. Common stock.	27,000,000

The debenture bonds to be exchanged for general mortgage bonds to the amount of \$17,000,000, and the balance to be exchanged for collateral trust bonds. The holders of the preferred and common stock will be invited to subscribe at the rate of not exceeding \$8 a share for the first-preferred stock. And this subscription, amounting to \$4,000,000, will produce that sum in money. The money will be applied to the payment of the secured debt. The result of the plan, successfully carried out, will be to exchange a mortgage and secured debt of about \$25,000,000 for a debenture mortgage bond dependent upon income of \$20,000,000 and a reduction of the compulsory fixed charges to the amount of about \$1,500,000 a year; that is to say, this amount of interest must depend upon income. All of the securities are preserved in the order of priority and the stock is kept in its relative position, except that the subscription of \$8 a share is to be protected by an issue of first-preferred stock to the exact amount of the sum subscribed.

"The general mortgage occupies the same rank as before but is enlarged by the amount of \$3,000,000, and this is substantially the only concession asked of that mortgage, except that its interest must depend upon the surplus income of the company over and above the interest on prior liens. The prior mortgages on which the Court has ordered interest payment from the earnings of the road are left untouched, and all questions in regard to leased and acquired lines are referred to the new company, which alone can have any power to negotiate. It is understood that a syndicate of capitalists has offered to take all of the stock declined or forfeited by the stockholders and pay the cash subscription therefor, but ample time will be given to the stockholders to subscribe, and the subscription will probably be in quarterly installments of \$2 a share."

Western North Carolina.—The track on the Ducktown Branch of this road last week reached Charleston in Swain County, N. C., 65 miles west from Asheville and 35 miles beyond Waynesville. Work is to be pushed forward to the Nantahala River.

Wisconsin Central.—Work is being pushed very actively on this company's new line to St. Paul. The whole length of the line from Chippewa Falls, Wis., to St. Paul is 104 miles, and a large part of the grading in Wisconsin is completed. Track is reported laid from Chippewa Falls west 20 miles, and the work is advancing rapidly. In Minnesota nearly all the right of way is secured and work on the grading begun. The line is built under a separate organization, known as the Minnesota, St. Croix & Wisconsin Co., which is controlled by the Wisconsin Central.